ADVANCED Management

OCTOBER 1960

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The Ethical Challenge of Modern Industry
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The "In Basket"

S.A.M. Annual Fall Conference Issue

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Progress Through Enlightened Management

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AM

EDITORIAL

The Local Chapter — SAM Keystone

WHAT MAKES SAM such a unique and dynamic professional management society? I suspect it is the chapter structure. The chapter format follows the most advanced concepts of management decentralization. And in this process the leadership at the chapter level is the key to the organization's virility and its promise for future growth. Indeed the experiences of leadership at the chapter level and the subsequent responsibilities at regional and national levels are among the most rewarding to anyone interested in self development. Many valuable lessons and experiences came to me personally in this process. I believe others would benefit greatly from the opportunities of leadership in SAM.

If the key to SAM is the chapter, then the chapter must be strong and effective. This can only come about if effective and dedicated men are attracted to the chapter and persuaded to accept responsibilities. Chapter leadership is not a hollow honor or political gift. It is the critical keystone of SAM. The chapter officers have an opportunity to attend SAM officer workshops. Manuals and materials that share the experience of all chapters are pooled and distributed to Chapter officers. All of this helps chapter officers in fulfilling their society responsibilities more effectively.

But their efforts are no better than the support they receive from the chapter members. If the chapter structure is the keystone of SAM, the chapter membership is the cement that holds it together. Recently, a doctor, in response to a woman's frantic plea through the telephone as to what to give her three year old who had been swallowing sand and water in the yard, urged "Just don't give her cement." However, the cement of strong chapter membership is what we in SAM do need.

As we begin another season, I hope all of us will strive to make SAM, particularly on the chapter level, a force for advancing scientific management in our communities and our nation.

D. L. BIBBY
Chairman Board of Directors

Organization Growing Pains

By Eugene J. Benge

Management Consultant

IN FOUNDRY PRACTICE the design of the mold frequently determines the strength of the casting. Similarly the structure of the organization frequently determines the strength of the company.

Business organizations, like people, grow from childhood through adolescence to adulthood — successful business organizations, that is. Some pass away in childhood through frailty, some never get through adolescence because they don't know they're growing up, and of course some die of senility because they can no longer adapt to change.

Of the 1909 100 largest corporations in our own country, only 31 were in this class fifty years later.

The National Industrial Conference Board studied 150 well known companies to discover the underlying laws of growth. Two important findings:

1) One man management has characterized the childhood of virtually all successful companies, but in order to get beyond the shortpants stage these companies had to change to *team management*.

2) It is important that each company realize when it is outgrowing the existing organization pattern.

A shop or department, as well as an entire company, can likewise suffer from a need to change the organization structure. Exhibit 1 shows the evolution of supervision in a machine shop.

	Total number of employees	Number reporting directly to the boss
Stage 1	3	2
Stage 2	25	24
Stage 3	135	11

Neither Stage 2 nor Stage 3 was properly organized. The reader can, if he so desires, sketch the organization chart he would propose for this group and compare it with the actual solution shown at the end of this article, as Exhibit 4. The actual solution will not necessarily be better than one developed by the reader.

Generally it is easier to understand organization principles for the company as a whole than for a given shop or department. Once the principles are grasped, application to specific situations can more readily be made.

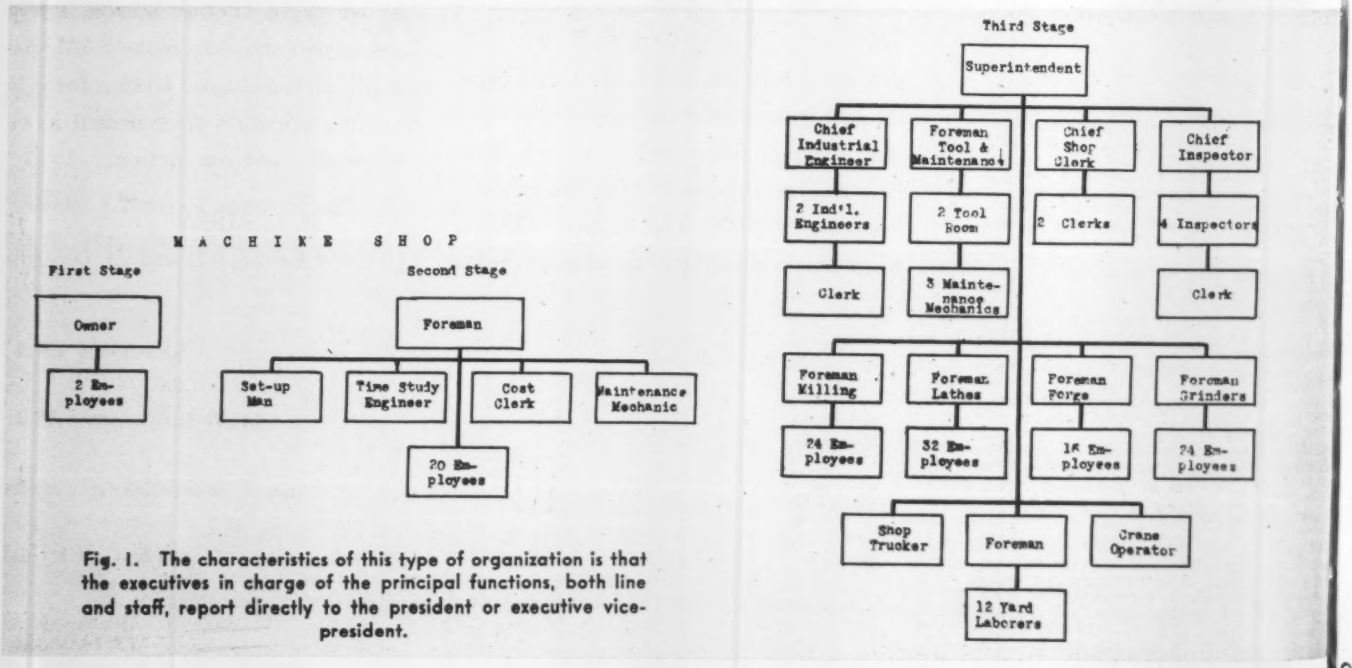


Fig. 1. The characteristics of this type of organization is that the executives in charge of the principal functions, both line and staff, report directly to the president or executive vice-president.

Functional Organization (see Exhibit 2-A)

As a business grows beyond the scope and energy of one man, it begins to functionalize. As various functions become burdensome, specialists are employed to supervise them. Perhaps the owner hires someone to supervise production. Later he may hire a sales manager.

The chart shows four functions only but others will usually be found.

Characteristic of this type of organization is that the executives in charge of the principal functions, both line and staff, report directly to the president or executive vice-president.

Organization growth merely consists of adding personnel to the basic skeleton. Occasionally an "assistant" or "assistant to" is designated to lighten the load on the head of the function. Likewise, at lower levels foremen, subforemen, technicians, chief clerks, section heads and branch managers are appointed. These additions do not, however, change the basic reporting structure.

Divisional Organization—Geographic (see Exhibit 2-B)

If a company is widely dispersed, a geographic divisional organization may be indicated. Dispersion, or the desirability of dispersion, results from far-flung selling effort, from widely scattered sources of raw materials, from high costs of hauling raw materials or finished goods.

In one kind of divisionalization, branch plants are established at various geographic locations. Each one is virtually autonomous as to manufacturing, selling, purchasing, accounting, etc.

Sometimes all manufacturing is done at one plant location, but sales effort is organized on a divisional, geographic basis. In this situation, top management needs to realize that policies and practices which operate well in manufacturing (with probably a functional organization) may not be applicable in marketing (with a divisional, geographic organization).

Divisional Organization—Products (see Exhibit 2-C)

In some instances, the problems of manufacturing varied products are so different that it pays to set up special manufacturing units. In this event, the organization pattern is likely to be that shown in the chart. It reveals four product divisions, each one virtually autonomous as to manufactur-

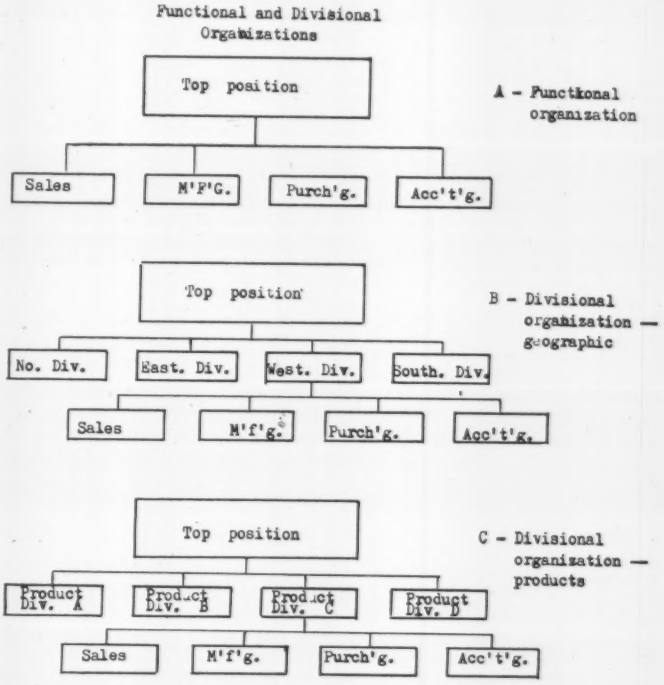


Fig. 2. Three types of organizational division.

Eugene Benge, President, Benge Associates is one of the four consultants to lead a workshop group in the coming Fall Management Conference sponsored by The Society for the Advancement of Management. Long Range Planning is one of America's most important tools, and it is also the theme of Mr. Benge's workshop.

ing, selling, purchasing, accounting, etc. Frequently a vice-president heads up each division.

It is usually feasible for manufacturing to be done on a product division basis, with a unified selling organization organized on a geographic division basis.

It is difficult to change a manufacturing organization to either a product division or geographic division basis because of the heavy plant investment involved and the upheaval to the existing organization.

In any proposed reorganization, the reporting lines and the authorities of staff departments, groups and individuals are likely to present difficult problems for decision.

Staff Departments

Staff departments can be attached to line departments, or to other staff units, at any organization level.

There can be general corporate staff at headquarters only, serving the entire organization. There can be divisional staff only, serving the respective divisions, or there can be both.

Staff can be used for advice only or it can be used for advice and control.

In the accompanying (illustrative) advice and control chart, Exhibit 3, the four staff vice-presidents report directly to the president. The four staff managers in manufacturing and the four in sales report directly to the vice-presidents of manufacturing and sales respectively, but the dotted lines (3-A) reveal that the general staff vice-presidents additionally exercise a control over their staff counterparts in manufacturing and selling. This control normally consists of plans, policies, procedures and appraisals of results—seldom is it supervisory direction.

The vice-president of personnel, for example, lays down policies and procedures to be followed by the personnel managers in manufacturing and sales. The vice-president of finance and other general staff officers exercise a similar control over their staff counterparts in line departments.

Of course, they also serve as staff advisers to their immediate superiors.

Staff advice *and control* are likely to be found in organizations which are decentralized, i.e., either divisional, geographic or divisional, product. Usually, management denies that the staff groups have any control power, despite the obvious fact.

The personality and prestige of the staff head can help or hinder his success in the control aspect of his work. Likewise the attitude of the chief line executive can enter into the relationship between a staff head and his staff counterpart, directly responsible to the line executive for conduct. For instance, in some life insurance companies the branch cashier is directly responsible to the head cashier at the home office.

Staff Advice Only (see 3-B)

In contrast, note the simple relationships where the staff is used for advice only: information, consultation, research and perhaps training. In this situation the staff exists principally to advise a line executive as to its area of specialized knowledge.

If it wishes to establish policies and procedures for staff counterparts at decentralized points it must work only through the line authority.

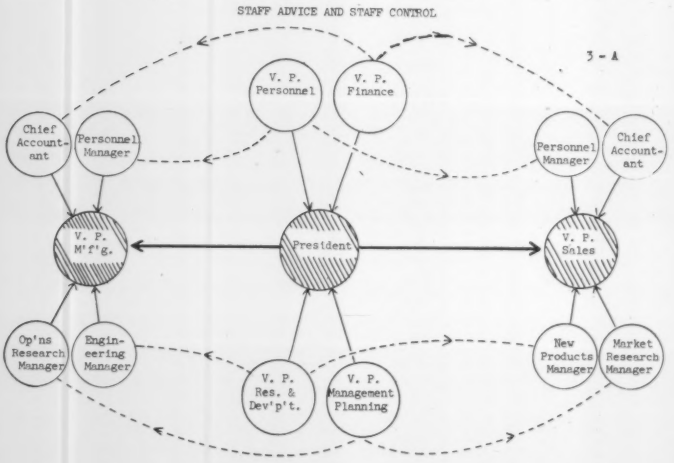
Some Storm Warnings

When companies or departments are expanding rapidly, management is likely to become conscious of a need to change the organization structure, but many static companies and departments are already suffering from incorrect organization. Like an old man with gout, they have lived with the disease so long that they endure it as a necessary evil. Stages 2 and 3 in our machine shop example, Exhibit 1, exemplify such a situation.

Following are some signs which suggest need for a searching analysis of relationships existing within the present organization pattern. The presence of one or two of these "growing pains" may not be significant but the intrusion of a great many of them almost certainly indicates the need for change.

Twelve "Growing Pains"

1) There are more than two organization levels between the first line foremen and deciding authority. The foreman asks for a decision from the assistant superintendent, who asks the superintendent, who asks the plant manager. This situation can mean that the superintendent has not been granted sufficient power to decide or hasn't been told what power he does or does not have.



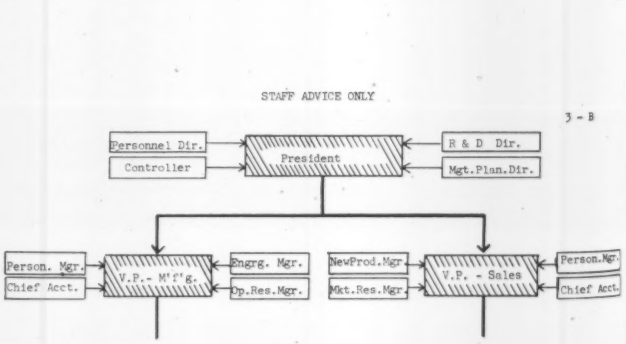


Fig. 3. The additional control exerted by the staff vice-president consists of plans, policies, procedures and appraisals of results, seldom supervisory.

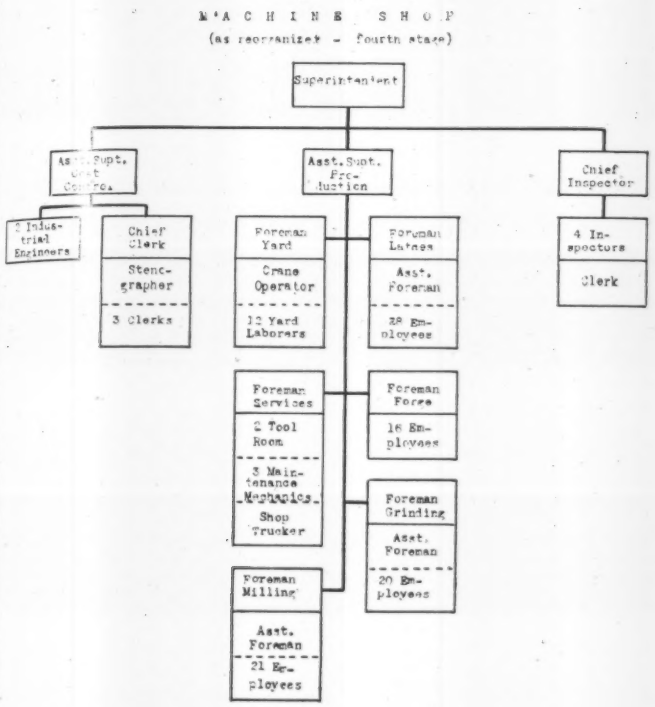


Fig. 4. Two assistant superintendencies have been created, one to handle production, the other office detail and cost control.

2) A high level executive has various "assistants" and "assistants to." This condition usually signifies centralization of authority in a situation where decentralization is indicated. Generally, too many key men report directly to the top executive.

3) Conflict between high level line and high level staff executives. It takes careful analysis to distinguish which staff functions should be divisionalized, i.e., should be detached from corporate or headquarters staff and attached to divisionalized line executives.

4) Conflict between corporate and division staff men. Fault here may lie with the personalities of the men involved; with lack of understanding of authority, duties and accountability; with the reporting lines dictated by the organization chart.

5) Shortage of executives—Sometimes a company grows sales dollars faster than executives. Ill health, death and resignations can cause shortages in managerial talent. Even when these conditions do not exist, a company may suffer executive shortage because the organization simply does not encourage the development of executives. Usually such a company is the highly centralized, functional type.

6) Methods are radically changed. These may be in manufacturing, marketing or administration and may involve new equipment as well as methods.

7) Top level policies are altered. These may apply in a number of directions: finance, ownership, markets, products, labor relations, governmental relations, etc.

8) Little Lateral Communication—Functional lines are drawn so sharp that it is difficult for a middle management executive in one function to work with his peers in other functions. Contacts between the two functions must be made through their respective chiefs.

9) Too Many Committees—Committees can be useful for information, participation, complaint drainage or gathering of viewpoints but majority votes of committee members can rarely be substituted for executive decision making.

10) New Plants, Scattered Geographically—Geographic decentralization is likely to force authority decentralization. Until this is brought about, long distance phone bills, and long distance frustration, are likely to be excessive.

11) Product Diversification—The manufacture or sale of widely different products may not be economical through existing production or marketing facilities.

12) Competitors Divisionalize—If a competitor changes from a functional to a divisional organization, you can be sure he gave it a lot of study first. Maybe it's time to consider your situation too.

Reorganization of Machine Shop

Reverting to the machine shop organization problem outlined at the beginning of this article, Exhibit 4 shows the recommended organization chart. Two assistant superintendencies have been created, one to handle production, the other office detail and cost control. The foreman of tool room and maintenance reports to the assistant superintendent of production. Three persons, instead of eleven, now report directly to the superintendent, freeing him for better planning and control. Despite the increase in supervisors from ten to fourteen, the total number in the department has been reduced from 135 to 129.

Recentralization

Neither centralization or decentralization is, in itself, a good or bad thing. The effects, or probable effects, must be studied.

In some companies, factors are at work which lead to *re*-centralization of authority. Principally these factors are:

1) Top management disappointment over the results of decentralization. Due to insufficient experience, lack of conceptual ability, inadequate information or narrow viewpoints toward profits, some divisionalized executives have failed to live up to the much-heralded benefits of decentralization.

2) Introduction of electronic computers. By centralizing the collection and interpretation of factual data, top management feels able to make important decisions better than hunch-following division managers. Similarly, operations research, with its application of complex mathematical concepts, must necessarily rest in the hands of a few staff advisers to high level management.

3) Automation and numerical control. Normally these features involve such radical changes in manufacturing and such large capital investments that decisions must be made at the very top level.

Economists tell us that normal organization growth follows a typical cumulative (s-shaped) curve: a period of struggling for existence, a rapid rise, a slowing to maturity. Some companies achieve their growth in twenty years, some in fifty, some never get out of short pants. Management understanding as to the necessity of changing the organization pattern permits the growth to occur. ■

THE ETHICAL CHALLENGE OF MODERN ADMINISTRATION

By
Ordway Tead

It is precisely by the development of his administrative skills that Man preserves and extends his freedom. The complexity of modern society and the omnipresence of large-scale organizations not only provide an opportunity for the fullest development of the responsible self; they actually place a premium on the exercise of a greater measure of personal responsibility by more people than ever before.[1]

ONE OF the most pervasive realities of modern American life is administration — the fact, the process, and the responsibility. The word as here used will be equated with management and with executive labors of a general, high-level directive nature. Wherever we turn in the conduct of our highly organized society there are those who administer or manage and those whose labors or activities are administered or directed. This is true of government at all levels, of business and industry, of educational systems, schools, colleges and universities, of hospitals, churches, prisons, and numerous philanthropic agencies of social amelioration. We literally live and move and have our being in frameworks supervised by administrators.

There are common problems of basic function in most if not in all organizations. There is the explicit work of carrying out the designated purposes — the producing of that sought to be realized. There is the work of financial measure, evaluation, and control. There is the distributive, informing, selling, public relations role. There is the role of motivation, stimulation, and morale building among those who are members or employees. There is the integrative or coordinative assignment of tying together all the several functional activities for the assured fulfilment of the avowed purpose.

Stated in other terms administration includes the planning, organizing, initiating, directing, overseeing, coordinating, and evaluating of the ongoing enterprise. Broadly viewed there are two separable types of managerial activity. One has to do with the technical process, the technological implementing, of the explicit purpose of the organization. The other has to do with the continuing and inspiriting relating of the personnel of the agency to the effective doing of the assigned job. Obviously the process and the personnel phases of management often interweave. But the application of human energy to the purposes in hand constitutes a distinct operation and calls for special and definite skills. Indeed it is in this phase of management that the ethical problem becomes explicitly posed.

I propose, therefore, to look first at administration in a *democratic* society with its own special and unique frame of reference and see what criteria or norms of managerial conduct are implicit in this democratic frame. I propose second to consider how ethical sensibility in these directions and under these conditions is to be encouraged and cultivated.

Our democratic American society stands for certain declared moral and ethical intentions and aims. For example, each person is autonomous, an end in himself with purposes of self-fulfilment, growth, and self-actualization which are not to be denied. Self-respecting, self-responsible personalities take precedence over ends of all organizational dominances. The "organization man," as he has been described, represents a distortion of values. But in any formal organization the individual has a limited freedom within which he has to assume the responsibilities of work and functional usefulness. He should be provided freedom to be creative in his own unique way to assume responsibility for the function he is assigned to perform. The consent of

the governed is an essential condition in a true picture in all our multifarious organizations. Participation in decision-making in those matters which affect one's personal destiny and fulfilment is a required democratic attribute. Communication as a responsive, reciprocal process is an imperative requirement so that personal involvement shall be informed and affirmative. Equality of opportunity to realize one's own potential is an intrinsic condition. The leadership which our society and its organizations require is one of persuasive appeal and stimulation — not of authoritarianism. It has to do with establishing a valid case on behalf of some common purpose to which the individual can with integrity ally himself. The authority which administration has rightfully to exercise is one characterized by an informed, tactful, collaborative appeal in which power is exercised cooperatively and not unilaterally.

In sum, the ethical mandate upon administrators is to help persons to fuller self-actualization, to richer creativity, to a more meaningful life. And since life is plunged into organized and somewhat systematized human relations for the greatest variety of objectives, the squaring of objectives with personal careers and the enrichment of the human situation is the consummation of administrative power.

I

It thus has to do with a variety of implementing managerial tasks which have to be consciously in mind to this end. These tasks can be identified in a variety of ways and one is in the now somewhat familiar provisions of the features of what has come to be called the personnel function. This may be summarily suggested in the following terms as having bearing upon ethical concerns.

The purposes of the organization with which the individual proposes to become associated should become clear to him by virtue of some explicit communication. It is not, depending on the context, that one can tolerably accept a mere job, or become a perfunctory student, a passive patient, or a nominal affiliate. Any administration is presumably infused with a purpose and as such it has to interpret the organization to prospective newcomers with some widened appeal at once persuasive and explicit. This means that in the introductory process the individual should be assigned a place in which his unique talents are relevant to the specific task that he is being asked to assume. Appropriate selection and placement are imperative. The introductory process also has an orientation phase including often some training effort and some familiarity with the expectations upon the new member as to standards of action, personal relationships, and group participations. This process should also include clear information and implicit recognition or acceptance by the new member as to the "terms and conditions" of the relationship. In matters of employment this will usually require knowledge of the agreed terms of the "labor contract." This, of course, may be the product of collective bargaining or of managerial determination by fiat. But it is important at this point that the accusation of exploitation with respect to these terms shall not be justified. The terms of the contract of employment itself are thus infused with ethical implications. And if this contract derives from free negotiation among bargaining equals, the assumption has been generally accepted that a "fair" and acceptable bargain has been reached.

A consideration for health and physical well-being of the personnel also comes within this purview. This often extends to what is now referred to as "fringe benefits," having to do with the provisions for illness, disability, dismissal, vacations, old age, etc.

It may thus be said that explicit assumption of a personnel function by administration underscores the need for an ethical outlook which considers people as ends as they pursue the several purposive requirements.

II

But beyond the field of personnel administration there is a complex of broader interrelationships. I propose to consider briefly the following related phases of the managerial task: leadership, authority, communication, participation, creativity, representation, negotiation, and consent. All administration has to be dynamically concerned with these several processes and their end results. And unless they are clearly viewed as to their intrinsic, substantive quality, ethical sensibility will remain inadequate to the complexities of the task. All of these are areas of moral significance.

III

Leadership is a controversial concept. But I shall try to interpret what I mean when I say that democratic, face-to-face leadership is at the heart of ethical accountability. Opposed to this, of course, is authoritarian leadership in which the leader's objectives and purposes are uncritically advanced as the sole alternative, and to which passive loyalty is the required end and criterion of leading success. In the democratic concept the role of the leader has to do with loyalty to purposes.

That the administrator can and should be the leader in this sense is not only realistic but is wholly practical, especially if we leave to each manager to interpret according to his own temperament and character how he will go about standing symbolically for leadership, stimulation, heartening focus upon a worthy corporate end.

IV

There is a proper ethical role also for the exercise of *authority*. Authority can be of several kinds. It can be the exercise of arbitrary power usurpation: it can stem from position and status, of knowledge and expertise, or of the total participative outcome of consultation with appropriate sources of wider knowledge. In this last interpretation there is thus the authority of collaborative understanding resulting from a listening attitude, the authority of group devotion and of true leadership influence in the sense just defined.

In the assignment of management the expectation of achievement and purposive performance is high, not to say imperative. The manager is responsible to secure the intended results. And in the ethical sense the ways by which these results are achieved are crucial.

Authority can be wisely and desirably exercised when

the one who exercises it can say in effect — the numerous alternate consequences have been appraised in the light of the best knowledge available from all sources; and this specific exercise of authority seems the most desirable one. Among the desired outcomes, of course, should be the beneficent effect of the decision in the long look on the condition and prospects of employee or member personalities in correlation with sound corporate results.

V

Communication is another ambiguous concept. Indeed much that now passes for communication is only the self-satisfied reaction of the executive that he has *told* others as effectively as he knows how. But communication is soundly measured by one test only — namely the effective response. The question has to be answered — has communication (through whatever medium conveyed) resulted in a *change* in the total reaction of those to whom it is addressed? The response may come in terms of alterations in attitudes, skills, or behavior. And it can even be positive or negative as long as it is consciously explicit and overt. Failure to agree is often as important to managerial comprehension as is a successful outcome. Either result is informative to the communicator in terms of "feedback," for either result leaves him more fully aware of what he has to cope with as future data in the resolving of his problem.

Perhaps as important a resultant as any in true communication is the reaction upon the managerial person that he now reappraises the elements of a situation more realistically. On the part of the executive there has to be *listening* as well as utterance. Only thus can there come the sense of fuller command of the subtler aspects of that with which the communication is concerned.

Communication is important ethically because it involves purposeful changes in persons — alterations of thought or conduct which may have favorable or adverse consequences on the personalities of those who are virtually required to listen. And the possible consequences have to be prospectively weighed even in the initial decision to attempt to communicate.

The gadgets of communication are numerous, and the larger the organization the more mechanical, impersonal, and indirect they are likely to become. "To go before the constituency" in personal confrontation should therefore usually be the preferred means dictated by ingenuity and courage, so that reactions can be immediate, direct, and capable of vivid evaluation. Good communication is thus a teaching process toward good learning, by which is also meant that the learner is coming to think, feel, act and express *differently*.

The ethical mandate to bear in mind here is that any pietistic assumption that the will and need to communicate assure the fact of a true mutuality of response and understanding, is a false, not to say dangerous, assumption. Communication is a personal and human fact with a personalized and knowable result. It cannot be left to *devices* to do what *only persons can do with and to each other* wherever there are intentions of goodwill which have become reciprocal.

VI

I consider *participation* next because I am referring to the voluntary efforts of the groups at interest to get a basis of collaboration. The need to communicate about how best to realize purposes is thus jointly acknowledged and can thus be willingly brought into being. Devoluted small groups of similarly functioning individual members become the key to the best participative action. "What do we all know about how best to do this specific assignment?" becomes the question before the house. "Let all of us involved in getting results pool our best experience and ideas to achieve maximum productivity or performance on behalf of the end in view"—in genuine participation this has become the sincere affirmation of the directive agents of management.

Ordway Tead

Various processes of participation are of value in forwarding ends of efficient performance all the way down through the managerial hierarchy. Worker or member participation has thus to be organized, shared, given approval, guaranteed security against jealousies, and rewarded. This is the basic democratic method by which the actual work processes, standards, and conditions will secure the interest and allegiance of the generality of participants. It can also be the organized channel through which the encouragement of individual creativity can well function.

VII

If it is assumed, as I shall assume, that the desire for the satisfactions of personal *creativity* is one of the dominant human drives, there has to be provision for the instrumentalities of its encouragement. The opportunity to be creative has to be structured cooperatively. And this, as much experience has shown, can bring remarkably beneficial results both in improved performance and in self-fulfilment.

Here again, however, there has to be the initiative of administration to bring this to pass; and this task becomes a vital ethical assignment. In any completely satisfactory way this aim is not easy to achieve, for there is still work in the world at which even the moron may feel stultified. But that this creative fulfilment is an ethical end to be striven for is undeniable. Some types of organization will probably find it easier than others to approach nearest to this goal. Educational agencies, for example, should fulfill this need and desire of the creative student far more completely than is now usually the fact; but to achieve this result there must be a fuller grasp and application of the psychology of learning by both teacher and student.

Mr. Tead's career is a unified one in the sense that in the fields of administration, editing, writing, and teaching on social science and educational themes he has shown the interrelation of theory and practice in management, higher education, and publishing.

Beginning immediately after graduation from Amherst College with three years in the South End (settlement) House in Boston, Mr. Tead's interests led him into consulting work and teaching in the field of labor relations, both of which occupied his time during the first World War on behalf of the United States Government.

Ever since conducting War Emergency Courses at Columbia University in 1917-18, he has retained his connection there as Lecturer in Personnel Administration and from 1951 to 1956 as Adjunct Professor of Industrial Relations. He was also a faculty member of the Department of Industry of the New York School of Social Work, 1921-29.

After five years as an editor for the McGraw-Hill Book Company, he became in 1926 Editor of Social and Economic Books for Harper & Brothers, which position he still holds, in addition to being a vice president and director of that company. He is past President of the Society for the Advancement of Management. From 1938 to 1953 he was Chairman of the Board of Higher Education of New York City, of which he is still a member. He was Chairman of the Board of Trustees of Briarcliff College from 1942 to 1958. He was a member and consultant of the President's Commission on Higher Education, 1946-47.

VIII

I highlight the fact of the value of the principle of *representation* because there will be plenty of occasions in which pure democracy is impractical and indeed undesirable. The ethical prescription here is that within organizations the several groups which may correctly view their interests and their contributions from differing angles have the right and the responsibility to have those interests voiced in a representative way in councils where common policies and problems are being considered.

IX

Negotiation, too, is usually conducted on some representative basis. The underlying relationship of the individual to the organization may on periodic occasions bring into play the process of group or collective negotiative dealings. In industry and in other employing agencies we speak of this as the effort to reach agreement upon "the terms and conditions of employment." And increasingly the ethical imperative of a collective bargaining process is being recognized. This usually entails, moreover, a condition of approximately equal bargaining power, howsoever brought about. And the negotiative process to achieve this end has to be periodically reviewed in all its supplementary conditions to be sure that this equality is being attained. So-called "right to work" laws, for example, have a seemingly valid ethical purpose. But if they seriously impair the equal collective dealing basis and actually work to bring back into operation a purely individual bargaining relationship, the result will be not equalized negotiation but the old master and servant relation.

X

Implicit in these several concepts is the requirement and the method of the *consent of the governed,* which is integral to the democratic purpose. There are to be sure varying degrees of consent. Sumner H. Slichter used to refer to the fact of the institutional presence of "antagonistic cooperation"; there is passive consent, uninformed and nominal consent. And there is the true consent of a knowledgeable participation in relevant decisions with a positive and understanding concurrence in the matter at issue. It would seem to be ethically required that on most of the larger issues of policy and practice there be this informed, willing, and interested consent in well-administered organizations—and on a greatly enlarged volume of problems. This has become the condition in the absence of which morale, genuine cooperation, creative participation, and a legitimate institutional loyalty will not be realized.

XI

I would re-emphasize in relation to this ethical challenge the reality of the existence of what is known as *conflicts of interest.* Such conflicts are inescapable, are continuing or recurring, are—to a point—creative. And they imply little or nothing about the capacity of the institutional leaders to guide the agency through and beyond such humanly natural tensions to a deepened sense of common intention and cooperative purpose.

One reason for elaborating upon participation, negotiation, representation, and consent is to make clear that it is through the honest confrontation of the reality of conflicts of interest by administrators that they will be brought to invoke measures which will enable the organization to work through and transcend its disparate internal outlooks to a creative, fruitful reconciliation of the interests of the several claimants for consideration.

There is still the perennial danger and the temptation upon the executive leader to believe that "father knows best" and that the affirmation of his paternal concern and the claim that he is presiding over a "big happy family," will short-change the democratic process. Such a conviction of the importance of "sweetness and light" fails to bring into the open the perennial conflicts of interest; but this truth sounds to many executives heterodox and subversive rather than fructifying, which in fact it is or can be.

XII

The larger and the more complex the institution, the greater is the need for this kind of acknowledgment to the end that organized representative means will be employed to offset sheer size with the internal agencies planned to bring about devolution, reconciliation, and unification. The administrator's task obviously gains in magnitude with the size of the corporate group. The task of running a one-room school is patently poles apart from that of being president of Harvard University. And the ethical mandate upon the administrator in the latter case requires wide general and technical knowledge, cooperative skill, tact and patience, and ethical sensibility of a high order. In all the larger administrative responsibilities a governmental or bureaucratic superstructure can sink the administrator, unless these mandates of democratic consultation are heeded.

XIII

I come, therefore, in conclusion to raise briefly the question as to the possibilities of cultivating ethical sensibility. It seems to me that the components looking toward this cultivation include at least the following:

(1) The administrator must gain a full grasp and knowledge of the problems of his field as to which the ethical complexities are conceivably entailed in the kinds of dealings and decisions required. Identification of these as possible aspects of an educational training program are practical possibilities.

(2) The administrator should come to have a conscious awareness of, a sympathy with, and eagerness to make use of, those approaches and methods broadly referred to here as *democratic*. He should be strongly predisposed to democratic outlooks. He had better realize all that it can mean for ethical good to want authority *with* others and not *over* others. Every aspect of the democratic aspiration and process should become a well-nigh religious passion with him.

(3) He should know which aspects of his program and policies are means and which are ends, what the organization needs to fulfill its purposes, and at the same time where the individuals from sweepers to trustees are having genuine scope for personality expression and creative fulfilment.

(4) He should have a permissive view of the basic wholesomeness of personality and of the psychological drives and satisfactions which healthy-mindedness seems to require to give play to on behalf of the whole man.

(5) Somehow he should see all this as related to the fundamental moral mandate upon him to act responsibly as a son of man and hopefully as a son of the God Who presides over, originates, and wills the human scene.

(6) He had better have gotten some predisposition in these several directions by his earlier exposures in education — in liberal arts colleges and in graduate schools of administration. And if these institutions are not doing what they should along these several lines the time to begin is now.

These several requirements are easy to state. They are harder to come by: nor is there any royal road to such goals. Initial aptitude, humility of outlook, conscious self-cultivation — these are stronger assets than the popular "executive development courses" which constitute a strong movement in corporate business management today. What issues have to be raised and puzzled over, what sensitivities have to be encouraged, what philosophical predilections in the broad areas of political science, social psychology, and the administrative arts; which have to be favored as illuminating the problems which will be faced — all of this has to be made articulate.

I would offer every encouragement to executive development courses as our industrial corporations are recently extending them. But they must be broad, liberal, patient; and they are no substitute for early training, basic character, and vision. We do unquestionably do better than ever in our society today with the ethical encounters of administrators. But we have a long way to go and much reiteration is necessary about the constituent elements of the ethical implications entailed and the basic principle for their resolution.

The reward of all this is great. The reward is the harmonizing of our practices with our American professions. The reward will be in terms of finer personality, greater productivity, improved social harmony, and democratic consistency. The reward has to do with self-actualization, with the rightful personal freedoms and the creative opportunities opened by administration at all levels of complexity. ■

In a world of large scale organization everybody is expected to understand and practice the art of administration. Those who do so effectively will experience a sense of freedom – not in the interstices, but right in the middle of things.[1]

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[1] See Harlan Cleveland, "Dinosaurs and Personal Freedom," *The Saturday Review*, February 28, 1959.

THE ENGINEER'S ROLE IN MANAGEMENT

By

Frank Walter

Mr. Frank Walter hails from Massachusetts where he attended Tufts University Engineering School. In 1950, after receiving a Master's Degree in automotive engineering from Chrysler Institute, he was assigned to the Development Design Section, planning, programming and scheduling. In 1957 he became Assistant Chief Engineer — Body Engineering Operations. From June 1958 to June 1959, Mr. Walter attended the Massachusetts Institute of Technology as a Sloan Fellow in the executive development program. He received a Master's Degree in Industrial Management and returned to Chrysler Engineering as Chief of Styling Administration and Planning.

AN ENGINEER may be described as a person with training and/or experience in scientific and technical disciplines applying his creative abilities to contribute to the return from investment in engineering research, — and development, — and design for production.

Engineering is the "creativity approach," — the consciously and intellectually planned effort to invent or design a product to provide competitive advantage, or improve merchandising potential, or meet specific consumer need.

Engineering starts with two basic raw materials, — the knowledge and ideas produced by pure research, — and the needs and wants of consumers (either known, or interpreted by sales.)

What then is the Engineering Role in the Enterprise?

Engineering's primary responsibility is to contribute a stream of consumer-oriented economically produceable products on which profitable perpetuity of the enterprise may be based.

To achieve this, what should engineering manage? It should, I believe, cover three things to be managed which constitute the meat of "The Engineering Role in Management." These three things are "innovation," "contribution," and "lead time." They should be managed well by Engineering in order that Engineering play fully its potential role in enterprise success. Innovation, contribution, lead time, — let's consider them in that order.

Innovation

One foremost problem Engineering must solve to capably perform its role in corporate management is that of managing "innovation." By "innovation" I do not mean the products of development departments, research laboratories, test facilities or even creative personnel. Managing innovation is not managing technological change. Rather, Engineering must learn to manage the total process of innovation. Industry has made a breakthrough by demonstrating that it is possible to systematize innovation. Peter Drucker, well-known management consultant, in a speech at M.I.T. recently said we have developed "a new belief that we are capable of organizing for change with systematic purpose."

Actually, very little is known about innovation and its management. It is a formidable problem facing management in general. However, Engineering, as a vital organizational element, must develop and demonstrate ability to manage this process of innovation, — the generation of a stream of new products, — the process of product evolution.

Today it is practically impossible to read anything, except possibly the comics, without meeting reference to our tremendous R & D efforts. The annual expenditure for R & D is close to $10 billion per year. $120 billion will be spent in the sizzling sixties. This compares to $60 billion in the fifties, and only $100 million per year as recently as 30 years ago. With the exception of pure research, R & D is Engineering.

Engineering must manage this tremendous investment in the process of innovation and make a good return on the investment possible.

The president of one company with a billion dollar annual sales volume has estimated that 90% of his company's sales in 1970 will come from products of which there is no inkling today. Presently many companies are deriving 50% of their sales volume from products and processes unknown 10 years ago.

But, what is this process of innovation? We know it includes idea search, project evaluation, transformation of information, refinement of knowledge, progressive testing, simulation techniques, recognition of needs and desires, standardization, etc. We also know that each of these elements of the process is susceptible to improvement, — that improvements are being made today.

Various studies have focused on the gap between initiation of R & D effort and availability of the resulting product. Variation is great, but Dexter M. Keezer, V.P. of McGraw-Hill, in what he calls "almost cosmic generalization," states that the process spans somewhere between 5 and 7 years. This coincides with a study in process at M.I.T. which identified 6 years as the average time interval for a large group of companies. This latter analysis is heavily weighted by chemical companies, but it goes on to state that over this 6-year span, an average of 630 product ideas, — identifiable new product potentials, — were evaluated for each one that reached the market as a profitable item. This appears to classify innovation as a filtration process of extremely high selectivity.

Engineering must note that on this basis, the one product that gets to production must pay for the 629 that didn't and only after that can it begin to provide return. Whatever this innovation process, engineering must manage it to control this ratio. Essential in this context will be Engineering's realization that the consumer's concept of price is what he expects to get out, — not what the innovator put in!

This country's great surge in research and development began in the mid-fifties. Therefore, if the 5 to 7 years is accurate, the early 1960's will produce the first mass results of gigantic organized innovation. Engineering management must be watching carefully if it is to learn more about this benign monster which it must direct.

Innovation is a process which produces, actually forces, change. Change is not entirely predictable and can be destructive as well as constructive. Engineering will have to manage the innovation process recognizing both potentials of innovation power. With commensurate responsibility it must identify, for top management decisions, social, cultural and political impacts as well as the physical impacts of innovation. The recent experience with cranberries is a simple case in point. R & D, or Engineering, gave us the new and better fertilizer. That it also provided a cancerous concern, — inconsequential, thank goodness, — was inadequately managed. We need the new fertilizers, but we must also see the destructive concerns ahead of time.

This past year I have heard leaders of development activities in chemical companies say that they have far more compounds technically feasible for production than they have uses for the compounds. This indicates a basic unbalance in the innovation process. Probably it is a natural one at this stage since the act of innovation is more highly advanced than the process. The act brings knowledge or information to light. The process uses it for benefit. Engineering may treat the unbalance, if such it be.

Industry has displayed a fascination with volume as the road to profit, — and rightfully so, based on past performance. Something about this innovation process may force or require a shift to profit as the primary motivation for any conscious act of managing innovation. Engineers are accused of being insensitive to profit considerations. Engineering, as the manager of the innovation process, probably will have to use an evaluation scale marked in increments of profit potential.

I wish I could place more dimensions on this innovation process. I can only point to the need. The tempo of innovation has been increasing in exponential fashion. There is no let-up in sight. The main impact of major research efforts occurring universally in industry is ahead. Engineering must manage the process so the results of innovation are truly profitable.

Contribution

A second requirement of Engineering's role in management is to manage "contribution," or the process of improvement. Essentially this is management of people engaged in the innovation process. It revolves around recognition of improvement as an innate desire of man.

Professor Erwin H. Schell, pioneer in management philosophy, originator of the Sloan Program in executive development, and a member of your society has said, "Men of industry possess talents and potentialities little realized or capitalized upon." And, "realization of new resources of ingenuity and creativeness now are essential to competitive advantage.

Engineering will continue to manage men as emotional and analytical beings, as sources of innovation, as technically trained specialists and as corporate assets. However, as Engineering views direction of engineers as management of "contribution," — or views "contribution" as a force or an asset, tremendous rewards will result. Contribution to profitable perpetuity is management's responsibility. Contribution to improvement with and through his time, talents, and capabilities is man's objective. These are one and the same, and peculiarly related in engineering endeavor. Advances in management of "contribution" is Engineering's role. As management, Engineers must find means to create this

atmosphere for "contribution" in the daily process of contributing to the stream of new products. By so doing, they will fulfill their role in management to a far greater extent.

Managing "contribution" or "improvement" demands greater understanding of what influences the productivity of the engineer. More knowledge of the technical man himself is required. Also important is better understanding of environmental factors which stimulate and inhibit creative productivity. New forms of engineering organization probably are required. The project form of organization which mobilizes all necessary skills around a problem may receive greater attention in this regard. It requires a concept of dynamic or changing organization structure about which we know little and understand even less how to manage. The Valiant project was engineered in this project form of organization and has been acclaimed as an outstanding engineering accomplishment. Morale of those "contributing" to its success was very high. Management of "contribution" was exceptional.

In order to play this role in management well, Engineering must make substantial progress in suitable rewards for creative accomplishment. "Rewarding" requires "measuring." If there is one thing Engineering does not now know how to do, it is to appraise its own performance, — or measure the productivity of its assets.

We know reasonably well what an Engineer costs, but we are unable to measure what he contributes, or more importantly, what he should contribute. This is, in part, an inability to rate or appraise the individual engineer, but it is far more an inability to measure the collective contribution of an engineering group or a component thereof.

Recently we were presented the opportunity to devise a system by which we, as a Styling Section, contributing to corporate profit potential, may appraise our performance. All sections of the Engineering Division are similarly challenged. The results may be used to evaluate performance as one factor in determining incentive compensation.

It is certainly conceivable that a plant manager's performance may be measured by his standard cost variance, that a salesman's performance could relate to quotas, and that a purchasing agent's contribution might be relative to purchase price deviation from design target costs, etc. I wish I could conceive similar measures of performance for Engineers. It will be done in time. But, in order to manage "contribution," Engineering must learn to measure it.

Let me illustrate this with an oversimplification. Engineering is a fixed overhead factor of product cost. Dividing an annual Engineering budget by the break-even product volume gives a budgeted cost of Engineering per unit. An illustrative figure would say that our Styling Section has cost $10 for each car we sell. My presence on the payroll means that I represent $10 of cost in each of several cars at break-even volume. How can I know that my contribution is worth $10 in each of those cars? How can I demonstrate to my superior that it's worth more? To date, we have no gage for this kind of productivity, but it must come.

Here is another observation of the Engineering role of managing "contribution." Retention of the engineer's role as an integral part of management is essential to his individual productivity and creative effort. Engineering unions seek to negate this position. Their ability to do so is inversely proportional to Engineering's ability to manage contribution. By creating the right environment for contribution and for high engineering accomplishment, Engineering management can deter union invasion of engineer's ranks.

Lead Time

Having considered innovation and contribution, now let us turn to "lead time."

If Engineering is to approach fulfillment of its role in management, it must also make progress in managing "lead time." The six years of innovation span of which I spoke earlier is lead time of a sense, but I prefer to consider lead time as that period between decision for production by top management and the start of volume production.

Such a product decision, — if properly made — has 3 major elements, — selection of product specifications including costs, approval of engineering and tooling costs, and designation of lead time. At this time, lead time is least understood and probably most susceptible to systematic organization by the Engineering organization.

With advancing technology, time increasingly becomes a factor in competitive advantage. Competitive implications of lead time are most readily recognized in auto and appliance industries where yearly model change is the practice.

However, where competition exists, first introduction of any new product is advantageous. Engineering must consider on one hand the better product quality and lower product and production costs attainable with longer lead time. Against these it must weigh the greater profitability of competitive advantage provided by shorter lead time.

"Lead time" belongs to all corporate activities which prepare the product for introduction, — purchasing, tooling, pricing, work standards, sales, advertising, etc. But, Engineering management of lead time determines the availability

(*Continued on page* 27)

By E. H. ANDERSON
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THE FUNCTIONAL CONCEPT IN ORGANIZATION

THE FUNCTIONAL CONCEPT in organization has been the subject of much discussion, much difference of opinion, and apparently, much misunderstanding. It is the purpose of this paper to bring the concept into sharper focus in the light of modern conditions and modern usage. In order to do this it is necessary first to re-examine the concept as it was developed originally, second to distinguish it from other concepts in organization, and finally to examine its present application with respect to several situations and types of activity.

The functional concept became the subject of critical study after it was developed into a plan or structure of relationships, usually known as a type of organization, by F. W. Taylor and called by him functional foremanship.[1] This so-called type of organization was adopted generally as an important feature of scientific management by Gilbreth, Gantt and other exponents of the scientific management movement during the early part of the present century. An important exception, however, was Harrington Emerson, who rejected the idea as being unworkable and offered in its stead the line-staff type. From a survey of current management literature, Emerson's plan has won out both in theory and in practice. In so doing, however, the line-staff concept has been so broadened and loosened that it has come to include many features of the functional concept. As a consequence, many writers and practitioners in describing their organizations as line-staff fail to recognize the mixture of concepts with the result that their plans of organization are confusing to those who are trying to make them work. As they say, "why do they call this man a staff officer when everybody knows that he makes the decisions and that it is his word that counts? It seems at times that management almost abhors the concept but proceeds nevertheless to make use of it surreptitiously.

Functionalization

Organizing according to functions usually leads to the division of a company's total activity into groups of activities having to do with production, sales, accounting, finance and possible others. These functions known usually as major functions may then be further divided into minor functions, such as purchasing, personnel production control, plant maintenance, advertising, sales promotion, collecting market analysis, auditing, costing, and so on. This basis of division is distinguished from other bases, such as product, process, equipment, location, shift, and certain characteristics of the personnel, e.g., age, sex, race, nationality, etc.

When these various functions are thus recognized and their activities separated from one another, they are usually organized to constitute departments and sub-departments and placed each under the control of a supervisor or departmental manager. The supervisor or manager is then customarily given full authority over the personnel of his department and held responsible for the accomplishment of the work and the objectives of his function for the benefit of the whole enterprise. This process of dividing the work of the enterprise into functions, sub-functions, and so on, is what is known as functionalization.

Functionalization means, therefore, functional division; it does not necessarily mean or imply the functional type of relationship established for purposes of supervision and control which is characteristic of the so-called functional type of organization. Both of these functional concepts, functional division and functional control, were contained in the plan developed by Taylor and known as functional foremanship. In this plan, the duties of the first or lowest rank of supervisors were differentiated according to what were recognized as the functions of the shop. Taylor applied the principle of functionalization in dividing up and de-

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limiting the duties and responsibilities of his foreman (more appropriately, his assistant foreman). This step, however, is only half of what Taylor did and it is only half of what constitutes the functional type of relationship in organization.

Functional Control

The other half of functional foremanship is contained in the peculiar relationship of supervisors or assistant foreman (called functional foreman) to the workers, and vice versa. This relationship is one in which each supervisor to whom a certain function is assigned has some authority over all subordinates who may be involved even partially with the execution of his function and, accordingly, one in which all such subordinates may be under the authority and control of more than one of these supervisors at the same time. This idea of giving two or more supervisors, each controlling a different function of the enterprise, concurrent jurisdiction over the same persons is the peculiar feature that has characterized and distinguished the functional relationship in organization. The true functional type of organization is, therefore, one containing both functionalization, or functional division, and functional control, or control by special functional supervisors who are given authority for such a purpose over all subordinates in the organization.

Functional control consisting of supervisory authority limited to a certain function but not limited to persons and the concomitant responsibility of persons being made subordinate to two or more such supervisors at the same time has been hard to comprehend and often still harder to defend as a practical plan of organization. As is usually said, it violates the principle of unity of command, it causes a person to have to serve two masters, and it leads to conflicting loyalties and jurisdictional squabbles. Much of this criticism is indeed true especially when the plan is not thoroughly understood by all parties concerned and when it is not adequately implemented by appropriate procedures, regulations and systems. These conditions, it may be noted, are to some extent true with respect to all types of organization, but they are an absolute necessity for functional authority and control to operate successfully.[2]

Functional vs. Line Authority

The application of the functional relationship in supervision and control throughout all ranks in an organization, as Taylor applied it to foremanship, has been one of the most perplexing problems in organizing. The essence of the problem lies in either doing away with the line supervisors entirely or in somehow integrating functional officers, those with functional authority, with line officers, those having full authority. It is usually felt that the line officer with full authority to act in all matters concerning his unit is necessary to cope with personal, local and emergency problems as they arise. Promptness is more to be desired than correctness in some instances, and Gordian Knots do have to be cut sometimes. This being true there is the paradox of reconciling the full authority of one officer with the yet additional authority of another, a functional officer.

The way out of this paradox is much simpler than it may at first appear. This is because there is actually little place in modern industry for "full" authority as the word implies. The authority of the line officer, even the chief executive, is limited by law, by company policy laid down by the board of directors, by resources available, by labor unions, and at all times by custom and accepted standards of conduct. Furthermore, below the level of the chief executive, as soon as the first step is taken toward dividing up the work of the enterprise into operating units, there must be initiated some method of getting the divided parts or units back together again into an integral whole. This is usually best accomplished by establishing policies, procedures, systems and other devices for co-ordinating and controlling certain aspects or elements of activities common to the operations of the various line units. Unless this is done the enterprise is a mere aggregation of distinct operating units, not a single managerial entity.

To the extent that unified control over the various departments or divisions is established by the control of the separate aspects of their activities, the managers or supervisors of such units find accordingly their spheres of activity diminished and their independence curtailed and since the chief executive, due to the limitation of his span of attention and control, cannot personally supervise all the activities necessary for co-ordination and control, his only recourse is to appoint special assistants for the task. In dividing up this work and assigning it to assistants, it is usually most logical to do so on the basis of functions, i.e., activities having each a specific purpose essential to the successful operation and control of the whole enterprise. Such responsibility and authority as may be delegated to these various supervisors of functions must be accordingly withheld or reserved from that delegated to line or oper-

ating unit managers because they now have full authority only within limits or with reservations, or, as is said, with strings tied to it. It is thus by a method of reservation, or failure to delegate to line officers, that full authority is often restricted and diluted to such an extent that it may not differ greatly from functional authority. In such cases the only distinction may be that the line officer always has residual authority (that not specifically delegated to others) and full authority to act in order to adjust conflicts, eliminate confusion, and meet emergencies. The functional officer, on the other hand, may be said to have only specially delegated authority only over the proper performance of his particular function.[3] As to terminology, therefore, the term "functional organization" is a misnomer; in practice it is always a "line-functional" organization.

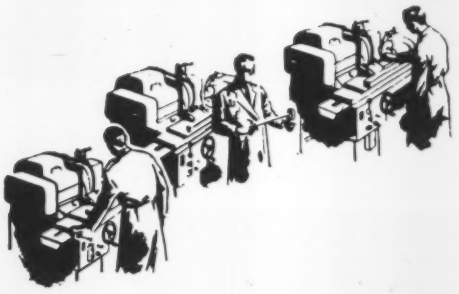
The Staff Concept

The staff officer in an organization is one who, as it is said, wields no authority but merely advises. Actually, however, advising should be the duty of every officer in an organization. No person should be exempt from the responsibility of giving advice as to his particular sphere of responsibility. Whenever there is close and effective cooperation among the officers of the organization the advisory relationships existing — often mutual — are usually too numerous and varied to be classified or represented adequately on an organization chart. They compose what is commonly known as the informal organization. The staff officer is merely one who deals only with information and advice as his major activity. The particular responsibility of the staff officer is to supply authoritative information to all those members who are entitled to receive it; his authority is the authority to get information, within his special field, from all those who may have it. He usually also has the duty of interpreting this information, transcribing it into useful form, and assisting and advising in its use.

In the line-staff organization the members holding line positions ordinarily perform all operations necessary for carrying on the main work of the enterprise and perhaps for short periods of time. The duty of the staff is to assist in such activities as assembling information, planning for the future, improving present procedures, evaluating past performance, and especially in recent years, helping establish and maintain communication with outside agencies. Such activities, though not always needed for usual day-to-day operations, may be indispensable in enabling the enterprise to operate with efficiency and to reach its stated objectives. In a small organization or simple operation, these activities are usually performed by the chief executive himself, but in a large or complex operation they must be delegated to others, and when so, they should be formally recognized and distinguished in the organization structure.

Functional vs. Staff Authority

The difference between functional and staff authority is often hard to distinguish, for in some cases it is more nearly a difference in degree than a difference in kind. Functional authority, as often differentiated, is that degree of authority



standing somewhere between the so-called full or command authority of the line officer and the advisory or informational authority of the staff officer. It is frequently called "instructional authority" since the relationship between supervisor and subordinate resembles more nearly that between instructor and pupil than that between master and servant.

Functional authority, in practice, is generally exercized and transmitted in the form of instructions, routines and regulations, and pertains more often to methods of procedure than to personal commands or orders for action that may be issued by line officers. The functional officer is neither an impersonal advisor nor a personal boss; he takes motivation and discipline to some extent for granted. In Taylor's plan, it will be remembered, motivation was taken care of by an incentive wage system and discipline was the responsibility of a special foreman.

The several types of officers are perhaps hardest to distinguish when all three are found in the same organization. In general, the functional officer is concerned with activities of a routine nature requiring a high degree of specialized skill, and exercises control over other members of the organization by obtaining their compliance with certain programs and procedures. As is often said, he is a program or procedural supervisor, or a supervisor of procedures, as distinguished from the line officer who is a supervisor of operations and operators, and the staff officer who is a supervisor of knowledge.

It is only when all routine activities and all those requiring a high degree of specialized skill are thus assigned to functional officers that the staff of any organization is left free to perform its true function. The staff was developed as a prop or an aide for the line executive to lean upon and call upon for help; to its officers could be assigned special tasks that relieved the executive of some of his burdens. These officers became known as the eyes, the ears, the brain, and sometimes the tongue of the office of the line executive. The relationship of the staff officer to his superior line executive must be, therefore, intimate and to some extent personal. The staff officer cannot become so engrossed in the performance and perfection of his specialty that he fails to perform as a member of the line team or loses sight of the over-all operation of the line unit. He should not have the specially delegated authority or responsibility for control of only a particular function such as that possessed by the functional officer.

The Evolution of Organization Relationship

The differences in the three types of organization relationships usually come about as stages in the growth of an enterprise and its adaptation to a greater degree of specialization of functions. There should be, in fact, an evolutionary process of organizing, adapting, and re-organizing that leads to the blending of one type into another with expedient mutations and combinations.

The failure to recognize the problems and the processes of a growing and evolving organization structure in a dynamic society is one of the greatest faults of organizers. Furthermore, the tendency to describe new situations and relationships with inadequate concepts and obsolete terminology is one of the greatest obstacles to developing an organization structure that can be understood by its members. In this field, it is hard to say which is the greater obstacle to understanding, using the same words to express different concepts or using different words to mean the same thing.

Functionalism

Finally, it should be noted that functionalism, the application of the concept generally, is one of the major characteristics of modern society. Functionalism is essentially an advanced stage of the division of labor applied to social, industrial and even political organization. Our government, for example, is divided among federal, state, and local authorities; these are again divided among legislative, judicial and executive branches; and the executive branch is again divided among various departments, bureaus, and commissions, each exercising functional control in a particular field. Furthermore, a dominant characteristic of our society is its multiplicity of institutions, associations, and professions each rendering a particular service and each exercising authority within the law over the performance of its respect function. Private industry is also characterized by a vast complex of trade associations, unions, institutes and professional societies each controlling to some extent the performance of its particular function.

The democratic society of America, it may be noted, did not develop according to the principles of line organization, nor of line and staff. Unity of command, the hierarchy, full authority, the subservience of staff, etc., were adapted from military organization. Totalitarianism was anathema to both Thomas Jefferson and Adam Smith.

The concept of the functional officer began with the first Druid, medicine man or priest and it has developed until it has become the professional specialist characteristic of our present-day civilization. These professional specialists began early in our history to associate themselves for the purpose of exchanging experience, increasing their skill, and exercising some degree of control over the practice of their professions. The early gilds, secret orders, and societies formed for such purposes often played a dominant role in the control of social and economic activity. Later, schools and universities were established to train professional practitioners and to certify by appropriate degrees to their competence. More recently associations and institutes have been established to control certain aspects of professional practice, such as entrance requirements, the dissemination of knowledge, standards of performance, codes of ethics, mutual support of members, promotion of the profession, and sometimes scales of charges and remuneration.

These professional associations, through their various programs and agencies provide modern industry with one of its most essential services. Each association specializing in its particular area or function usually has within its ranks the leaders and the super-experts in each aspect of its field. To them management can go for obtaining competent recruits, advanced technical information, and sometimes specific answers to its problems. They serve industry in the same way to some extent that the various technical corps headquarters serve the combat branches of the Army. General management, therefore, since it cannot hope to have knowledge superior to that of all the functional specialists in its own organization, is provided a source of assistance in supervising, evaluating and controlling its own experts. By using these associations, general management can delegate authority to its functional experts with some degree of confidence since it now has an agency for evaluating the performance of their various functional responsibilities.

Thus, the functional concept begins with the concept of specialization, it proceeds upward to the lower ranks of management to become functional foremanship, then to the higher ranks as functionalization and functional control, and, finally, to society at large as functionalism. And, last but by no means least, the concept applies not only to the division of activities, but also to both their immediate and their ultimate control.

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2. E. H. Anderson & G. T. Schwenning, *The Science of Production* Organization, John Wiley & Sons, Inc., New York: 1947. pp. 133-137, and 172-181.
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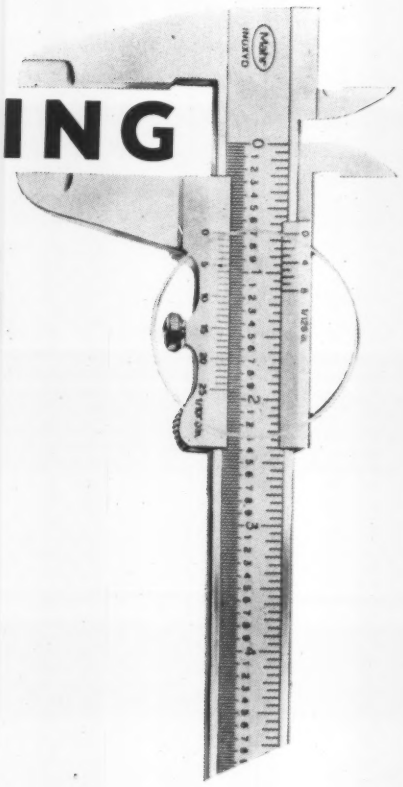
MINIMIZING THE PLANNING GAP



By

Fremont Kast

and

Jim Rosenzweig

PLANNING FOR THE FUTURE is becoming an increasingly important activity. As our industrial, social, and political environment becomes more complex, we see greater emphasis upon planning as a means of minimizing the uncertainty of the future. In our pluralistic society with its decentralization of economic and political power we do not have the same degree of centralization of overall planning that is apparent in the various totalitarian states — for example, in the five-year plans of communist Russia. However, in order to compete effectively — both militarily and economically — with other world leaders, our basis of decentralization of economic and political power must be as efficient as possible. It is implicit in our concept of economic and political freedom that this decentralized basis of decision making will result in a more suitable society — for the individual and in total — than under a monolithic state. However, this does not appear to be as automatic as was assumed under classical economic doctrine. For overall effectiveness each segment in our society — individuals, business units, and government — must develop more effective planning to provide guidelines for rational decision-making.

Business planning is certainly not a new phenomena, only characteristic of a highly industrialized society. The planning efforts involved in the trading ventures of the "Age of Discovery" were fairly complex. Christopher Columbus was a dramatic example of a planner of that era — he had to plan for the marshalling of physical, human, and financial resources with even greater uncertainty than is faced by the modern businessman. The industrial revolution brought the need for longer range forecasting and planning in production as well as in trading. The continuation of mechanization and advancing technology together with the shocks of two world wars and the Great Depression gave impetus to the role of planning.

Rapidly advancing technology has greatly emphasized the need for planning. Companies not abreast of current technology are often in trouble over the short-run. Moreover, companies that are not cognizant of technical changes that are likely to occur over the next five to fifteen years will also be in a disadvantageous position. Figure 1 shows the relationship which is developing between useful product life and the time required for research and development behind that product.[1] Accelerating technology has led throughout history to shorter and shorter lifespans for each new generation of products. Planned obsolescence has become a byword in our modern industrial society. In addition, the amount of time and money required to design and develop the product and to set up production facilities has increased. This longer development cycle coupled with the shorter use cycle has made longer range planning mandatory in order to minimize the risk of investing in a product with poor profit potential.

Prime examples of accelerating technological innovations — with increased research and development time and reduced useful operational life — are evident in military weapons. Each new generation of weapons seems to have a shorter life; in some cases weapons are obsolete before they become operational. Yet, they require increasing amounts of time and money for research and development — even more than previous weapon systems which were operational for many years. This advancing technology has made the problem of long-range planning and decision-making much more critical within the military establishment. Since each alternative to meet a military requirement is so costly in terms of development time and money, it is imperative that the optimum approach be selected at an early stage in the cycle. Although these problems do not appear to have the same magnitude in the civilian sector, they are nevertheless very real. It is becoming more important for all business organizations to thoroughly understand the implications of the future for the total economy and its own operations. Furthermore, these organizations must endeavor to plan in some detail for their own destiny; otherwise, they will be at the mercy of their environment.

This article describes the long-range planning function as an integrated decision-making system and discusses its position in the organizational hierarchy. Particular attention is focused on the key problem of coordinating the efforts of specialized planning staffs and line management. Possible approaches to alleviate this planning gap are outlined.

Planning: The Framework for an Integrated Decision System

Long-range business planning is not an entity in itself — its primary purpose is to provide the guidelines necessary for the vital decision-making processes throughout the organization. Long-range planning, therefore, should be geared to obtaining, translating, understanding, and disseminating of information which will help to improve the rationality of current decisions which are based upon future expectations. Expectations are developed through the process of forecasting and predicting the future. A great deal of effort has been devoted to refining predictive techniques to enable companies to forecast their ideological, political, legislative, and economic environment. Companies are becoming much more interested in broad economic data such as the national income and product accounts and are relating industry, company, and product data to the overall economic outlook.[2]

However, forecasting *is not* planning. While forecasting provides a basis for understanding and formulating expectations, management must go beyond this orientation stage and must develop programs of action designed to optimize the company's future performance. Since these planned programs themselves may alter the future — not only of the company but of the total environment — forecasts, no matter how rigorously developed, are seldom valid. If a company programs its future to fit the forecasted conditions, its behavior can be characterized as adaptive and its future success is a function of the predicted environment. On the other hand, if a company plans for aggressive action in pursuit of predetermined goals and objectives, its behavior can be characterized as innovative — shaping the environment.

Relationship of Useful Product Life to Length of Time (or Amount of Money) It Takes to Develop and Produce the Product

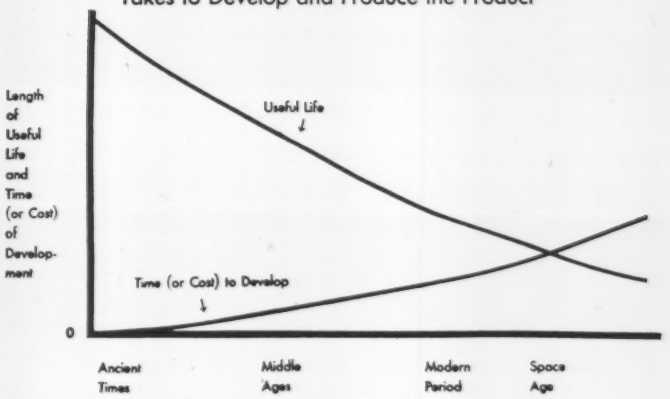


Fig. 1

Business planning is an integrative activity which should seek to maximize the total effectiveness of a company. Frequently in a complex organization, a great deal of planning is carried on by specialized functional or staff groups without a system for the coordination of these efforts. Unless there is clear-cut understanding of what overall objectives and goals are paramount, some of the sub-group activities may be maximized at the expense of total organizational effectiveness. All elements in a company must be aware of the expectations and directions set forth by top management and must understand the various premises upon which a course of action is founded. The means of achieving such understanding requires viewing the planning function from a total systems approach.

A systematic approach to planning would include the following steps: (1) appraising the future political, economic, and competitive environment, (2) visualizing the desired role of the company in this environment, (3) perceiving needs and requirements of customers, (4) determining changes in the needs and requirements of other interest groups — stockholders, employees, suppliers, and others, (5) developing broad goals, objectives, and plans which will direct the efforts of the total organization, (6) translating this broad planning into functional efforts on a more detailed basis — research, design and development, production, distribution and service, and (7) the more detailed planning and control of resource utilization within each of these functional areas — always directly related to the overall planning effort. This approach, developed and understood throughout the organization, provides an integrated decision system. Such a framework or master plan may be used to focus the efforts of the entire organization toward a common set of goals. Furthermore, if the underlying expectations and planning premises are set forth explicitly, all departments can carry out their planning function with the same guidelines. Major decisions can be evaluated in light of the master plan to determine whether a particular course of action would carry the company toward or away from its desired future position. In this

way the master plan serves to facilitate the analysis and integration of decisions in all segments of the organization.

This concept of planning as an integrated decision-making system is becoming more necessary as our economy increases in complexity. For example, although automation is frequently thought of in terms of its impact upon the production functions, its influence is much broader. The true importance of automation and mechanization is not limited to the degree to which it will replace human minds and hands with machines and computers, but is significant as an overall conceptual system of operation. Therefore, planning for automation must include systematic consideration of customer needs, product design, production, and distribution. Furthermore, automation and new technologies tend to require large scale fixed investments — in both physical and human resources — which demand operation at a higher percent of capacity. Automation inevitably requires the integration of market knowledge and product design into a program of manufacturing which lacks flexibility. Therefore, the planning function becomes extremely critical — the organization lacks the flexibility necessary to take major corrective action once the decisions have been initiated. A wrong decision, based upon faulty interpretation of the future, can be extremely costly. As an example, Ford's failure to perceive changing market characteristics led to nearly a half billion dollar loss with its Edsel cars.[3] Many other forces in addition to automation and mechanization have emphasized the importance of long-range planning as a system for integrated decision-making. The growing strength of unions, the inflexibilities in wages created through the guaranteed annual wage programs, and the increasing standard of living and discretionary buying power are examples of forces causing a growing need for systematic planning.

Today, more and more companies are recognizing the need for concerted efforts in long-range planning activities. At the same time, there has been some confusion with regard to exactly how individual companies should organize to most effectively carry out the functions of business planning.

Whose Responsibility?

Planning, organizing, staffing, directing, and controlling are the most common functions assigned to the manager.

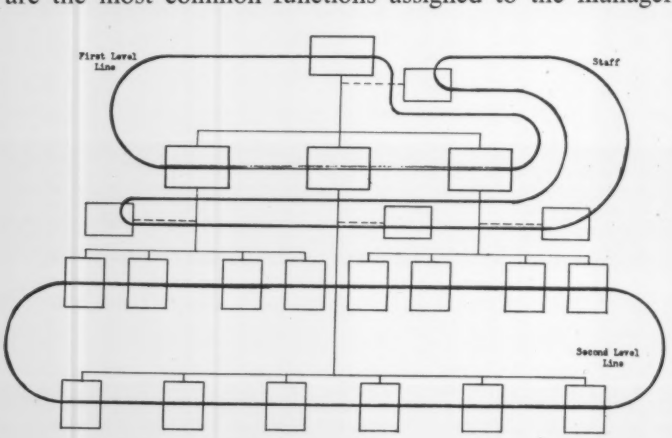


FIG. 2

Service Record, University of Washington (9 years):

Instructor, Lecturer, Associate Professor, Acting Director, Bureau of Business Research

Degrees: A.B., San Jose State; M.B.A., Stanford; D.B.A., Washington

Business and Other Experience:

Supply and Disbursing Officer, U.S. Navy

New Order and Estimating Department, Pacific Gas and Electric Company, San Jose, California

Consultant to office of Program Planning, Boeing Airplane Company, Seattle

Consultant to Office of Vice President for Research, Boeing Airplane Company, Seattle

Fremont E. Kast

Managers at all levels in the organization engage in all of these activities to some extent; that is, each must plan, organize, staff, direct, and control. As the manager moves up through the organizational hierarchy, however, he is likely to spend relatively more of his time organizing and planning than carrying out other managerial functions. Moreover, at the top levels there is also a gradation of the amount of time spent on planning for varying time periods in the future. Top management not only should devote most of its time to planning but must continually be cognizant of the necessity for long-range planning. No one else in the company is equipped to define the desired role of the company in its future environment. The character of the company must be established and its objectives and goals set forth explicitly as guidelines to decision-making throughout the entire organization. Clear-cut statements of expectations along with both external and internal premises for planning help focus the efforts of all managerial levels toward common objectives.

In many cases a specialized staff is set up to aid in the planning function. All too frequently this staff assumes that its role *is* planning rather than facilitating the planning activities of line management. Left to its own discretion this staff proceeds to set up objectives, goals, and plans according to its own conceptions and premises — often developing elaborate research reports to substantiate its position. Such staffs have a further tendency to equate their forecasting of the future environment with planning and to assume that the company will automatically adapt its operations to their predictions.

Line management's failure to recognize its own role in planning contributes to the problem. Planning for the uncertainties of the future is never easy — it is an activity which many of us would like to turn over to "specialists." The responsibility for the planning function cannot be delegated but is a basic part of line management's job. However, the line should provide the planning staff with the backing necessary to elicit wholehearted support in its activity of coordinating the planning activities of many different departments.

A further complication arises when specialized planning

James Rosenzweig

Service Record, University of Washington (4 years):
Assistant Professor, Assistant Director, Bureau of Business Research, Director of Business Administration Seminars (including Advanced Management Seminar), Associate Professor, Policy and Administration

Degrees:
B.A., M.B.A., Washington; Ph.D., Illinois

Business and Other Experience:
Consultant in Market Research, Kaiser Aluminum and Chemical Sales, Inc., Chicago; Management Controls Division, Remington Rand; Washington Steel Products, Tacoma
Special Consultant in Data Processing, and Office of Vice President for Research, Boeing Airplane Company, Seattle

staffs are established under each organic line operation (sales, finance, production, etc.) to aid their line managements in departmental planning functions. In this type of organizational arrangement the integration of planning activity is often carried out through cooperation and coordination between departmental and corporate planning staffs. In this way long-range plans may be coordinated and an integrated decision framework established by the staffs. In many cases, however, this leads to a great deal of confusion and organizational conflict because the master plan thus established has staff preparation — often with limited line management understanding and acceptance.

The Planning Gap

The "planning gap" is the divergence in the expectations, premises, objectives, and basic concepts which exist between various units within an organizational structure and which prevents the establishment of an effective, well-defined framework for integrated decision-making. This gap can occur between various levels or departments in the line organization. Specialized planning staffs are frequently established to provide a coordinated effort and to eliminate this defect. As shown by Figure 2, there may be a centralized planning staff reporting to the chief executive and also planning staffs for each line function. If the company is divisionalized, this structure may be pyramided through several additional layers.

The attempt to eliminate the problems of coordination for integrated planning by setting up special planning staffs may in itself create an additional "planning gap." In this case it is between the planning staffs as a specialized functional group and line management. The planning staffs can be quite effective in setting forth means for interfunctional integration and understanding, but they often leave the real planners and decision-makers — line management — to operate under quite different expectations and premises. In effect there may be two planning systems — one the master plan developed and integrated by the planning staffs, the other the implicit framework which actually guides the decision-making of line management.

Minimizing the Planning Gap

In a large scale organization with many-leveled departmentation, diverse sub-objectives, and organizational and human limits on rationality it is improbable that this planning gap can be completely eliminated. To do so would assume full knowledge, absolute predictability, perfect communication, complete rationality, and full agreement throughout the organization. However, there are a number of steps which can be taken which will help minimize the problems created by the planning gap.

1) An atmosphere of acceptance of the necessity for long-range planning must be established. And, this can only be done effectively by the enthusiasm and participation of top line management, not by a separate planning staff.

2) Top management must explicitly define the objectives of the organization to serve as guidelines for further planning and decision-making.

3) These objectives should be translated into broad goals and subgoals which set forth specifically the organizational expectations for the future.

4) In establishing goals, the expectations for the future must be communicated throughout the organization. Premises about external and internal conditions should be well understood.

5) The effective utilization of planning staffs depends upon the close and continual contact and coordination which is maintained with the line organization.

6) The line organization should not come to depend totally upon the specialized staffs for overall planning integration. This has to remain a prime responsibility of line management. It is only the line which has the authority and positional prestige necessary to establish and utilize a master plan which will guide the organization's activities.

7) Because the line is typically charged with the decision-making process, it is illogical to think of the separation of planning and decision making between staff and line units. Planning sets the framework for decision making and is therefore an essential line function.

In order to establish planning as a basis for integrated decision making, it is necessary (1) to have top management recognition of the need for and participation in the long-range planning process, (2) to have explicit statements of expectations, goals, and premises which are understood and serve as guidelines to the organization, and (3) to have complete communication of these guidelines throughout the organization.

In our dynamic society where the business organization is faced with many internal and external uncertainties, the requirements for more effective planning will continue to increase. If management is to keep pace with these requirements, it must minimize the "planning gap" and establish an integrated decision system based on organized, forward-looking plans. ■

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1 "Planning Business Progress," *Management Science*, April, 1959, p. 26.

2 Gerhard Colm, "How Good Are Long-Range Projections of GNP for Business Planning?" *California Management Review*, Winter, 1959, pp. 1-10.

3 *Business Week*, November 28, 1959, p. 27.

Quality Control and

By A. John Falk, Jr.

IN RESPONSE to an ever-increasing volume of paperwork, the number of office workers in public and private organizations has increased at an unprecedented rate over the past twenty-five years. With the burgeoning corps of clerical workers has come a movement in office management to devise methods of measuring clerical output. The degree of success achieved has been a direct result of the logical application of the principle of industrial time study to clerical procedures.[1]

It has been necessary for clerical analysts to adapt and modify industrial time study in applying it to office work. This has been due to the element of judgment and the unrepetitive nature of clerical jobs which tend to frustrate the precision of stopwatch observations. Despite these problems, many firms have applied the principle of time study through systems of clerical work measurement.

Measuring the Quantity of Clerical Work

The function of factory and office workers is to produce things. However, instead of an automobile or a television set, office workers produce things such as a posted ledger or a typed letter. A simple work measurement system measures the work of a group of typists according to the number of letters typed per employee hour. This measurement is obtained by totaling the letters typed in a day and then dividing by the number of hours worked. The adequacy of group production on any given day is found by comparing output per employee hour to past records of production and a predetermined standard of letters typed. As is true in all work measurement systems, the key element is the "standard". In this case it is the number of letters that can be completed by an average typist in one hour without undue fatigue. This standard may be set by statistically averaging past production records, or by stopwatch observations.

Not all work measurement systems use the product of a complete work operation, such as a letter typed, as a work unit. Many firms have found that the work time involved in producing what appear to be similar work units varies between clerical groups. For example, the letters typed by a stenographic unit used by sales personnel may take less time, on the average, than those typed by another group used by engineers. A solution to this problem has been the application of weighted factors to the products of dissimilar groups. These weights render the resulting work units uniform and comparable.

The development of work measurement has been of marked assistance to the first-line supervisor, to middle management, and, in fact, to all levels of management. The data it provides is useful in two primary areas:

1) As a control technique.

2) As a means of forecasting requirements for personnel, equipment, and office facilities.

As a control technique, work measurement provides a method of measuring individual and group output in terms of time expended. This yardstick assists in isolating subperformance units and individuals for supervisory action. While work measurement in itself does not tell why performance is below standard, it provides readily discernible danger signals that focus supervisory attention on the need for analysis and corrective action.

As a tool of forecasting, work measurement data provides a basis for estimates of future staff, office facilities, office equipment, floor space and other requirements. By estimating future work unit volumes, changes in production standards, and force losses, it is possible to predict fluctuations in these requirements on a short or long-range basis.

The Importance of Measuring the Quality of Clerical Work

While considerable progress has been made in developing tools for measuring quantity of clerical output, the quality with which employees are performing their work has gone virtually unmeasured. This is contrary to factory practice where quality of production is constantly measured through the inspection of a statistically predetermined sample, or by an inspection of all units produced. A group of inspectors independent of the production foreman makes

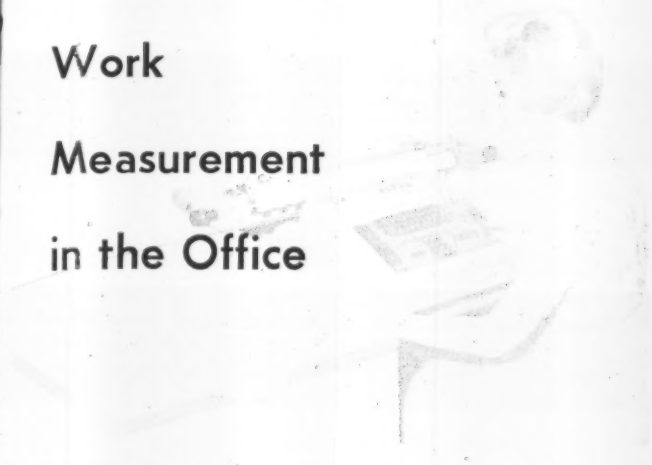
About The Author

For many years, John Falk has worked closely with quality control and work measurement plans as applied to clerical personnel. In addition, he spent ten years in the telephone industry and held managerial positions in personnel, engineering, public relations, and line management.

He holds a Bachelor of Science degree from Georgetown University, and a Master of Arts from American University.

[1] Industrial time study is the scientific determination of the amount of work an average factory worker can produce in a measured time period without undue fatigue. This output or "standard" is obtained by multiple stopwatch observations and mathematical formulae.

Work Measurement in the Office



this analysis and reports directly to plant management on the status of production quality. Despite widespread factory application, this has not been generally true in the office. The first-line supervisor has been left to his own resources in maintaining quality of output.

Just as office management has adapted and applied the industrial engineer's tool of time study, so too can industrial quality control be applied to office work. As in the factory, clerical quality control is achieved through the measurement of production units against quality standards. These standards of accuracy comprehend human frailty and the limits beyond which perfection becomes too costly.

While some office work requires an inspection of all units produced, statistical sampling is a reliable yet inexpensive tool of quality measurement. In sampling, a limited number of production units are chosen as representative of total output. The sample units are selected at random over a period of a month and are analyzed in terms of the standards of accuracy. From this analysis an index of quality can be computed that represents all clerical production for the month. This index is an excellent tool of management control and also acts as a stimulus to competition among clerical groups.

The Interrelationship of Work Measurement and Quality Control Results

It appears dangerous to measure and control quantity of clerical production without also measuring product quality. In an extreme case, one without the other might bring on a situation such as this: a supervisor has seen his unit's work measurement index drop for several months. In response to pressure from middle management he introduces programs of training to increase the speed and efficiency of his group. His employees, in turn, aware of poor performance, relax group and personal standards of quality in order to meet the production standard. Management might not learn of increased errors until mounting customer complaints reveal the harm that has been done to customer and public relations. As this example illustrates, not only is it prudent to measure quantity and quality of production, but it is wise to review one in the light of the other. A superior record of production may be achieved at the expense of the quality measurement index, and vice versa.

The interrelationship of work measurement and quality control results is seemingly self evident. Yet many firms have formulated elaborate programs for the measurement of the output of their office workers without a thought to quality control. The literature in the area of work measurement and quality control is equally vague. For example, the proceedings of a Management Engineering conference in 1958 on the measurement of clerical labor reveals that a meager one hundred words were devoted to the importance of measuring *both* quantity and quality of clerical work.[2]

Irrespective of the lack of attention paid to the mutual check and balance of these two measurements, enlightened office management will find it beneficial to set up plans for work measurement and quality control. Once these plans are in operation it becomes crucial that results be jointly reviewed. One becomes a check and a balance to the other. In this way harmful fluctuations in output and quality can be quickly identified and corrected.

A number of companies have developed sophisticated plans for measuring the quantity and quality of work performed by their clerical force. Companies such as Sears Roebuck & Company, the Government Employees Insurance Companies,[3] and the twenty-two Operating Companies of the Bell System (American Telephone and Telegraph Company)[4] have been measuring both facets of their clerical production for a number of years.

Conclusion

Work measurement and quality control of clerical output are key tools of management control. One without the other leaves unmeasured a vital area that can undermine the public relations and economic health of a company. Where both forms of measurement are applied it is important to view one in the light of the other.

A clerical organization that measures quantity of output without also measuring quality is akin to a man driving a car at night without headlights. They are both heading for a crash. ■

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[2] Gardiner, E. Willard, "Measurement of Clerical Labor". Proceedings of the 13th Annual S.A.M. - A.S.M.E. Management Engineering Conference, April 24-25, 1958, p 6.

[3] The Government Employees Insurance Companies have carried Work Measurement and Quality Control results to the ultimate by relating the wage progression of measured clerical workers to job performance. Records are kept of individual production and coincident mistakes; every thirteen weeks an employee's pay is revised according to his production and quality record.

[4] The Operating Companies of the Bell System (AT&T) use work Measurement and Quality Control plans to develop competition between units, offices, districts, departments, and companies. This plus profit and loss competition helps prevent the lethargy and inertia that is a danger when product competition is absent.

Personnel Briefs

SAM Appoints New Director of Education and Research

AFTER a careful screening of some excellent candidates, the Executive Committee has announced the selection of C. West Hodges of Upper Montclair, New Jersey as SAM Director of Education & Research.

West, as he prefers being called, will handle the combined responsibilities of research and education of the National Office. His major effort will be centered around the Advanced Management Course.

His background especially qualifies him for this assignment. For five years he has handled a variety of responsibilities as a senior member of the consulting staff of Industrial Relations Counselors Service of New York. In these assignments he shared in the leadership of management training courses, conducted studies of company personnel programs, and assisted clients in a variety of industries including steel, pharmaceuticals, textile, electrical, and chemical.

For some thirteen years prior to this West handled training, communication, and other personnel responsibilities in the Forstmann Woolen Company. During this period he was also associated for over five years with Glenn Gardiner in writing a weekly bulletin designed to strengthen the management skills of supervisors and executives in industry.

Between 1933 and 1942 West served as a teacher of social studies in the Ridgewood, New Jersey school system. He has maintained his interest in public education by serving on various state and community educational committees.

West did his undergraduate work at Williams College and took his Masters at Harvard in 1932. He now lives in Upper Montclair with his wife, Elizabeth, and their four children.

Welcome to the fold, West.

C. West Hodges

Evaluation of Chapter Performance

AS A management organization, we talk about the "management cycle" (*plan, execute, evaluate* or variations thereof). The Chapter Performance Award Plan is evidence of S.A.M. effort to practice what we preach. A new committee is starting to "evaluate the evaluation", in our periodic effort to update and improve the plan. This chart shows the relative standings of the 10 leaders in the Chapter Performance Awards competition for the Fiscal Year ending June 30, 1960.

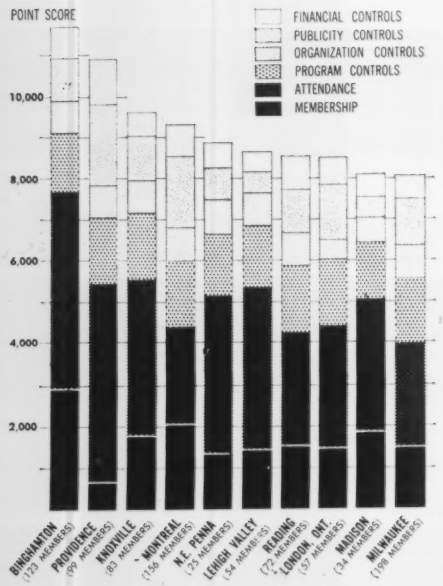
Note that the greatest percentage of points (47% to 65%) acquired by these chapters has been through activities in the area of Membership, which includes acquisition of new members, maintenance of membership, and attendance of members at meetings (details shown in tabulation below).

Next most important point values are related to programs, ranging from 12% to 20% of the total. These points relate only to the publication of a program it should be noted, not to the variety or subject areas of seminars, workshops, roundtables, etc.

The third most important totals of point values relate to publicity, and range from 10% to 19%.

If any member has suggestions for the committee as to a) activities to be measured, b) relative importance of factors, or other viewpoints, please write them to Clyde O. Carpenter, Chairman, Emerson Awards Committee, Knoxville Utilities Board, 626 South Gay Street, Knoxville, Tennessee.

Hezz Stringfield
Secretary



For period of July 1, 1959 to June 30, 1960

		MEM. CONTROLS			PROG. CONTROLS			ORGANIZATION CONTROLS						PUBLICITY CONTROLS				FIN. CONTROLS			
RANK	CHAPTER	MEMBERSHIP APPLICATIONS	MAINTENANCE OF MEMBERSHIP	MEMBER ATTENDANCE	DRAFT OF PROGRAM	TRAINED PROGRAM	BOARD MEETINGS REPORT	MANAGERIAL ROSTER	RESPONSIBILITY LIST	COMMITTEE CHAIRMAN	CHAPTER CONSTITUTION	CHAPTER BY-LAWS	CHAPTER ORG. MANUAL	CHAPTER NEWSLETTER	PUBLIC ANNOUNCEMENTS	CHAPTER ACTIVITY NOTICE (FULL)	CHAPTER ACTIVITY NOTICE (PARTIAL)	ANNUAL CASH BUDGET	QUARTERLY FIN. STATEMENT	ACTIVITY FIN. STATEMENT	TOTALS
	* REFERENCE	1A1	1B1	1C1	2A1	2A2	2B1	3A	3B	3C	3D1	3D2	3E	4A	4B	4C	4D	5A	5B	5C	
1	BINGHAMTON	2331	600	4721	400	600	450	100	100	300	100	100	100	400	70	460	100	200	400	160	11,692
2	PROVIDENCE	648		4806	400	600	600	100	100	300	100	100	100	480	340	920	270	200	400	440	10,904
3	KNOXVILLE	1200	600	3762	400	600	600	100	100	300	100	100	100	400	105	420	120	200	400	10	9,617
4	MONTREAL	1444	600	2378	400	600	600	100	100	300	100	100	100	400	90	1060	190	200	400	160	9,322
5	N.E. PENNA.	736	600	3779	400	600	550	100	100	300	100	100	100	480	85	180	30	200	400		8,860
6	LEHIGH VALLEY	836	600	3918	400	600	500	100	100	300	100	100	100	40	115	140	220	200	200	60	8,629
7	READING	910	600	2786	400	600	600	100	100	300	100	100	100	400	40	400	170	200	400	220	8,526
8	LONDON, ONT.	867	600	3002	400	600	550	100	100	300				480	160	560	130	200	400	110	8,509
9	MADISON	1266	600	3188	375	600	400	75	100	300		100		200	35	220	70	200	400		8,079
10	MILWAUKEE	852	600	2524	400	600	600	100	100	300	100	100	100	400	85	360	270	200	300	30	8,021
11	W.NO.CAROLINA	948	600	1684	400	600	500	100	100	300	100	100	100	360	385	480	580	200	400	20	7,857
12	HUDSON VALLEY	911	600	1961	400	600	600	100	100	300	100	100	100	360	215	540	130	200	400	110	7,827
13	CHATTANOOGA	896	600	2864	400	600	450	100		300	100	100	100	360	70	260	40	200	300		7,690
14	PITTSBURGH	712	600	1708	400	550	550	100	100	300	100	100	100	400	70	780	150	200	350	250	7,520
15	LOS ANGELES	1267	600	1699	375	600	500	100	100	300	100	100	100	320	145	230	260	200	300	30	7,326
16	GREENSBORO	880		2729	400	600	350	100	100	300	100	100	100	160	220	320	140	200	400	40	7,239
17	GREENVILLE	248		3063	400	600	450	100	100	300	100	100	100	440	185	380	120	200	300	10	7,196
18	TWIN CITY	920	600	1917	375	550	500	100	100	300	100	100	100	400	90	280	120	200	400	80	7,182
19	FOX VALLEY	1308	600	1838	375	600	550		100	300	100	100	100	40	135	170	110	200	400	90	7,116
20	CHICAGO	1040	600	1148	400	600	550	100	100	300	100	100	100	240	175	320	380	200	400	200	7,053
21	LANCASTER	320		1458	400	600	600	100	100	300	100	100	100	440	400	420	350	200	400	190	6,578
22	ORANGE COAST	1012		2106	400	600	450	100		300	100	100	100	240	105	180	90	200	200		6,283
23	NEW HAVEN	940	600	1554		550	350	100	100	300				320	225	320	190	200	400	90	6,139
24	WILMINGTON	904		1702	375	600	550			300	100	100	100	320	65	250	70	200	400	20	6,056
25	CENTRAL PENNA	976	600	1762	400	550	250	100		300	100	100			55	220	80	200	300		5,993
26	WASHINGTON	792		1248	400	600	600	100	100	300	100	100	100	160	85	340	120	200	400	120	5,865
27	KANSAS CITY	1024		1094	375	600	400	100	100	300	100	100	100	120	50	320	60	200	400	100	5,543
28	CHARLOTTE	1106		1412	400	600	400		100	300	100	100	100	280	35	220	40	200	100	10	5,503
29	RARITAN VAL.	252		1855	400	600	500	100		300	100	100	100		20	110	40	200	300	100	5,127
30	INDIANAPOLIS	632		812	400	550	500	100		300	100	100	100	280	70	360	100	200	300	50	4,956
31	NEW JERSEY	276		931	400	600	350	100		300	100	100	100	280	40	400	260	200	300	20	4,817
32	ALABAMA	1160	600	428	400	600	150	100		300	100	100	100	40		40	20	200	100		4,438
33	CLEARING	240	600	1274	375	600	150			300	100	100	100		25	80	50	200	200		4,394
34	BRIDGEPORT	812		1856	400		150			300	100	100				240	60		300		4,268
35	POUGHKEEPSIE	80		1366	400	550	150			300	100	100	100	80	85	200	50	200	200	60	4,023
36	NORTHERN ALA.	200		1592	200	275	150			300	100	100		120	110	250		200	200		3,757
37	NASHVILLE	800	600	400	400	150	100			300	100	100	100								3,400
38	HARTFORD	40	600	224		150	50								25	60	10	200	100		1,859
39	BALTIMORE	368		792			50			300					35	60	20	200		10	1,835
40	BOSTON	96	600	10	400		50			300	100	100					30				1,686
41	TRENTON	160		416		600	100							80	10	80	10				1,456

* Refers to Section of Chapter Performance Manual

UNIVERSITY DIVISION

PERFORMANCE AWARDS PLAN — FINAL RESULTS 1959-1960

"LEARNING BY DOING"

Chapter	Points Earned	Chapter	Points Earned	Chapter	Points Earned	Chapter	Points Earned
Loyola University-Chicago	5720	American University	3920	Duquesne University	2205	College of William and Mary	1160
New York U.-Commerce-Eve.	5720	Western Carolina College	3840	Bowling Green State University	2165	University of Scranton	1160
Ohio University	5720	Los Angeles State College	3755	Loyola College-Montreal	2040	Dana College	1110
University of Maryland	5720	Franklin and Marshall College	3630	University of Arkansas	2025	University of Alabama	1085
New York U.-Commerce-Day	5670	University of Omaha	3500	Rochester Institute of Technology	2005	University of Pennsylvania	1040
Auburn University	5640	Boston University	3410	St. Joseph College-Day Division	1975	Wayne State University	1030
LaSalle College-Evening Div.	5620	Long Beach State College	3360	San Fernando State College	1935	Syracuse University	965
Purdue University	5570	University of Bridgeport	3185	Newark College of Engineering	1910	Pennsylvania Military College	920
Roosevelt University	5570	University of Oklahoma	3120	Drexel Institute of Technology-Day	1900	Rutgers College of South Jersey	885
St. Norbert College	5520	Kent State University	3100	University of North Dakota	1895	Mississippi State University	865
University of Houston	5520	McGill University	3075	Ohio State University	1840	University of Detroit	850
Boston College	5440	University of Mississippi	3065	University of Wisconsin-Madison	1820	Arizona State University	840
Louisiana State University	5420	University of Minnesota	3030	Hofstra College	1815	LaSalle College-Day Division	835
Georgia Institute of Technology	5175	Temple University-Day Div	2840	Guilford College	1715	Kansas State University	710
Indiana University	5170	University of Chattanooga	2790	Xavier University	1610	University of Cincinnati	685
Univ. of Wisconsin-Milwaukee	5060	Memphis State University	2720	Lamar Institute of Technology	1570	St. Louis University	660
Rider College	5020	Butler University	2690	Fenn College	1550	Cornell University	625
University of Pittsburgh	4940	Sacramento State College	2680	University of Florida	1550	Georgetown University	600
Clarkson College of Technology	4630	Santa Maria Catholic University	2570	Western Michigan University	1540	University of Washington	565
The Pennsylvania State University	4620	Temple University-Evening Div.	2550	University of Baltimore	1435	West Virginia University	555
Babson Institute	4320	University of Kansas	2415	St. Peter's College	1400	University of Missouri	445
San Jose State College	4090	University of Tennessee	2350	University of Michigan	1390	Washington State College	400
DePaul University	4070	San Diego State College	2255	Oklahoma State University	1320	Clark University	390
University of Illinois	4060	North Texas State College	2245	Drexel Institute of Tech.-Eve.	1280	Suffolk University	345
Quinnipiac College	3940	University of Richmond	2240	University of Rhode Island	1255	C. W. Post College	160
						West Texas State College	150

Management Role *(from pg. 15)*

of this vital factor to the dependent operations. Proper management creates equitable distribution, — improper management creates confusion and lowers product quality. Engineering, in preparing and disseminating product information, establishes the time factor of performance potential for other corporate activities.

Two avenues exist for reducing lead time without depreciating design quality. First is technological improvement of processes, particularly for transforming information and creating tooling. Second, is simultaneous pursuit of operations that are normally sequential.

The first approach to reducing lead time is related to the control sequence of operations. One set of events taking place in a given order controls the use of lead time. Other subordinate sets of events of less duration control portions of lead time. For example, in automotive product creation, we go from clay model to preliminary drawing to aluminum draft to die model to steel die to assembly fixture. The time to carry our most complicated part through this sequence equals lead time. Technological advance provides reduction of the time required per step, or even elimination of a step. However, managing lead time through the control sequence approach limits lead time reduction to the pace of technology.

Usually operations on one major part constitute the control sequence. However, Engineering management must be alert to shifts of control sequence from a given part to certain types of minor operations repeated many times. As technology solves time problems of big parts, repetitive processing of information flow may assume maximum control of lead time. In development for space travel, it has already been said that management, not technology, is limiting the pace.

The second approach to lead time reduction involves the gamble that results of simultaneous development culminate as desired when desired. As a basic approach programs are initiated on their technical feasibility. Lt. Gen. Bernard A. Schriever, Commander of ARDC, who was responsible for the largest R & D program ever launched — $7 billion in 4½ years — calls this the "concept of concurrency." He placed great dependency on it in order to bring along the IRBM and ICBM programs within the required restricted lead time.

As a hypothetical example of this concept of concurrency, suppose that two basic interrelated problems — im-

To summarize briefly, Engineering must provide a stream of products on which profitable perpetuity of the firm may be based. In so doing, it must manage innovation, which is the process of filling the new product stream bed and maintaining a velocity of flow. Engineering must also learn to manage contribution, which is the major asset or capability of the people entrusted to Engineering management. Finally, Engineering must master lead time — the one irretrievable asset in its box of tools.

Professor Schell has identified a Golden Ratio, which, for any man, is the ratio of his lifetime accomplishments to his lifetime potentialities. Engineering's golden ratio, accomplishments divided by potentialities, will depend greatly on its management of innovation, contribution, and lead time in the next decade. ■

Introducing a new column summarizing many items of National and Regional interest that arrive in the ADVANCED MANAGEMENT In Basket during the month. If you have any items of interest to SAM members, please send to: "IN BASKET", ADVANCED MANAGEMENT, 74 Fifth Avenue, New York 11, N. Y.

Filter Man's Thinker

• Southern California Edison Co. is affirming a growing trend among new high pressure central stations by employing a condensate scavenging system to obtain ultrapure water for its boilers. The system will be installed at its Huntington Beach Station, a model power plant where most phases of operation from startup to shutdown, including some of the basic functions of the water treatment plant, will be controlled automatically by an electronic computer.

* * *

High Finance For Higher Education

The Council for Financial Aid to Education reports that 215 companies, responding to their survey, gave forty-one million dollars to colleges and universities in 1958. This compares with thirty-three million dollars reported by the same companies in 1956, an increase of 23%. Additional companies, whose gifts in 1956 are not known, reported gifts of twelve million in 1958, making the total known corporate support to higher education about fifty-three million.

* * *

Computer Changes From Slave To Student

ANN ARBOR — "We're converting the computer from slave to student," is how Frank Westervelt, a graduate student sums up results of a project at The University of Michigan's College of Engineering.

Two major developments are revealing important new uses for the high-speed digital computer. Results will be "generally applicable to every area of engineering analysis, system design and calculations of performance," says Associate Dean Glenn V. Edmonson, director of the project. According to him, these are:

1. A system simulator program that enables the computer to organize and produce a procedure to calculate the performance of a physical system when given a general, technical English language description of the system; and,

2. A program that enables the computer to produce analytical equations, or models, of phenomena that depend on many variable interacting factors.

This second development is used to produce equations for use in programs generated by the simulator. It also helps the research worker understand his data better by displaying in equation form the most significant factors that apply to his data.

The project from which the developments emerge concerns power plant design and was undertaken with the cooperation and financial support of Consumers Power Co. and Commonwealth Associates.

* * *

Eggheads To Crack Business Yoke

CHICAGO, Ill.—Eggheads will be rapidly assuming an important role in the administration of United States business and industry in the next two decades.

That's the prediction of Dr. Harold J. Leavitt, professor in the graduate school of industrial administration at Carnegie Institute of Technology, Pittsburgh.

Writing in the summer issue of *Hospital Administration*, Leavitt predicted that:

1. Eggheadism will be the next major development in the field of administration.

2. Eggheads will appear in much larger numbers.

3. They will more than pay their way.

Leavitt gave three reasons that will bring the egghead into more prominence in administration. They are:

1. The use of scientific research to solve problems.

2. The development of mathematical methods.

3. Development of the high speed computer.

* * *

SAM's Walter Mitchell Saluted By Association Executives

The American Society of Association Executives, at their recent annual convention, honored Walter Mitchell, Executive Director of SAM, with a sterling silver pin recording 25 years of service to association management. He joined this group originally in connection with his work for the Department of Commerce assembling reports and materials useful to trade associations and has published various articles and a book on association work. He had earlier been accorded a Life Membership in the New York Society of Association Executives in recognition of the book, "How To Use Your Trade Association," published by Prentice-Hall. H.A.S.

Professional Managers Citation to I. M. Stein

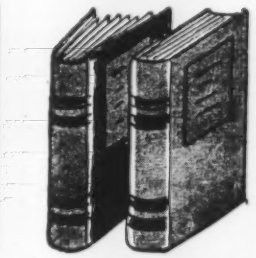
The 1960 Professional Managers Citation for Philadelphia was recently awarded by the National Office, Society for Advancement of Management, to Dr. I. Melville Stein, president of Leeds & Northrup Co. Mr. Daniel J. Cantor, Philadelphia chairman and president of Management Associates Inc., made the presentation. He stressed the Citation's reference to the Company's business ethics and advanced principles of management, and to Dr. Stein's attainments in management and in public service. The previous award of this honor was to Mr. H. Thomas Hallowell, Jr., president of Standard Pressed Steel Co.

Merit Award To McSweeney

Mrs. Patricia McSweeney, President, New York University, School of Commerce, Evening Division, receives Certificate of Merit from National Chairman of NFMD, Paul G. Demuro, Mayor of Passaic, New Jersey.

Management • Bookshelf

Beginning with this issue, S.A.M. will review many new books in management and related fields. It is planned to have a panel of specialists who will review the books in their fields of specialty. Until this panel is completed, the editors will attempt to keep the readers informed on currently released publications.



Organizational Behavior

The field of Industrial Sociology is producing some much needed examination of the business climate in American industry. Two new books that shed a great deal of light on the subject are Chris Argyris' work, *Understanding Organizational Behavior*, published by Dorsey Press earlier this year, and Grimshaw & Hennessey's *Organizational Behavior*, published by McGraw-Hill.

Dr. Argyris, a professor at Yale University's Institute of Human Relations, has been a researcher in psycho-social aspects of industrial behavior in recent years and a frequent contributor to ADVANCED MANAGEMENT Magazine. His present book is an extension of his approach to Management Organization.

In its early chapters, the book makes some theoretical assumptions that may appear academic to the practical manager. However, it also provides specific case studies of the application of the theories to actual plant situations.

Grimshaw & Hennessey are two distinguished Business Administration professors, the former at University of Washington, where he is also dean, and the latter at Dartmouth College, Amos Tuck School. Their book is complete with cases and readings, all of which offers a rich source of organizational analysis for the management researcher. Among 64 cases and readings are three articles that have been featured in recent issues of ADVANCED MANAGEMENT.

Social Behavior

Among the growing crop of popular books recently issued on behavior are Perrin Stryker's, *The Men From The Boys* published by Harper this spring, and Vance Packard's, *The Waste Makers* by David McKay Company this fall.

Stryker uses his incisive and often biting style in the fictional development of a series of articles published in Fortune Magazine on the characteristics of a good executive. The studies of top executives done by Stryker in recent years have been rewritten into a series of non-directive character studies of great interest, particularly to those in personnel research and man power development as well as to the students of "executive suite" behavior. His reference to visits to local SAM chapters should be of interest to readers. Packard is known for his caustic treatment of the advertising industry in his very popular book *The Hidden Persuaders* and for his equally provocative study of social class, *The Status Seekers*. Both have had much popularity and critical acclaim. In his current work, Packard draws a statistical and sometimes humorous analysis of the built-in obsolescence in consumer products in America. It is a fascinating document and one that should provide many of us in industry with a pause for reflection.

H.A.S.

University Division News

By HAROLD FISCHER, President

• Competition among the chapters in the Performance Awards Plan, was unusually keen this year and the reports revealed hard work and good planning, organization, leadership, and control. This was evident in an article in the May issue of Roosevelt University's Newsletter — MANAGEMENT ADVANCES, entitled To the Relentless Ones: "Organize, re-organize, and re-reorganize . . . if the work still doesn't function smoothly . . . tear it down and do it over again."

"What's your job in SAM . . . What have you accomplished thus far . . . What part haven't you finished yet . . . When will it be finished?" These are the phrases used by our patient faculty advisor, Prof. E. C. Flora and his associate advisors."

• At the Awards Luncheon on Saturday, October 29, at the Hotel Biltmore in New York City, the Remington Rand Performance Awards will be presented by Dause L. Bibby, Executive Vice President, Remington Rand Division, Sperry Rand Corporation, and Chairman of the Board, Society for the Advancement of Management, to the following chapters in recognition of their outstanding programs of educational activities during the 1959-60 academic year: Loyola University--Chicago, New York University--School of Commerce--Evening Division, Ohio University, University of Maryland, New York University--School of Commerce--Day Division, Auburn University, LaSalle College--Evening Division, Purdue University, Roosevelt University, St. Norbert College.

COMING EVENTS

October 23, 28, 1960	S.A.M.-N.T.L. Workshop in Leadership Development, University of Notre Dame, South Bend, Ind.
October 27-28, 1960	S.A.M. Annual Fall Conference, Biltmore Hotel, N. Y.
October 29, 1960	S.A.M. Board of Directors Meeting, Biltmore Hotel, N. Y.
January 27, 1961	S.A.M. Executive Committee Meeting, Los Angeles, Calif.
April 6-7, 1961	S.A.M.-A.S.M.E. 16th Annual Management Engineering Conference, Statler-Hilton Hotel, New York
April 8, 1961	S.A.M. Executive Committee Meeting, Statler-Hilton Hotel, New York
June 23, 1961	S.A.M. Executive Committee Meeting, Indianapolis
June 16 to 26, 1963	CIOS, 13th International Management Congress, New York City

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Wiley BOOKS

MANAGEMENT CONTROL SYSTEMS

Edited by DONALD G. MALCOLM, *Operations Research, Inc., and* ALAN J. ROWE, *System Development Corp. General Editor:* LORIMER F. MCCONNELL, *System Development Corp. With twenty-seven contributors.*

The result of a symposium held at System Development Corp., this book covers the whole field of developing modern management controls, starting with current practice and continuing with a description of the future, both immediate and long-range, of management control systems. Also deals with the use of computers to simulate company activities, thus creating a management laboratory for testing and evaluating the effects of policy and procedure prior to their adoption.

1960 374 pages $7.25

SAMPLE DESIGN IN BUSINESS RESEARCH

By W. EDWARDS DEMING, *New York University.*

Presents the theory and practice of sample design by the use of replication, which facilitates estimation and calculation of standard error. It also eliminates complex formulas of multi-stage design yet retains the efficiency of any possible design. It also gives several other new concepts, with examples from accounting, sampling human populations, and samples of records and of physical materials. *1960 517 pages $12.00*

CHANGING PATTERNS OF INDUSTRIAL CONFLICT

By ARTHUR M. ROSS and PAUL T. HARTMAN, *both at the University of California.* Analyzes the dramatic decline in the general level of strikes and walkouts in Europe and North America. Explains this in an account of changes in employer policies, government programs and union philosophy. *1960 220 pages $6.50*

MATHEMATICAL METHODS FOR DIGITAL COMPUTERS

Edited by A. RALSTON, *Bell Telephone Laboratories, and* H. S. WILF, *University of Illinois.* The only book on numerical analysis for digital computer *users.* Covers over 20 cases step-by-step, from problem analysis through program planning, flow chart construction, coding procedure, and de-bugging. *1960 293 pages $9.00*

EXPLORATION IN MANAGEMENT

By WILFRED BROWN, *Glacier Metal Co., London*

Describes the organizational system which has evolved in the author's own company. Regarded as a social institution in microcosm, this is the story of how an operating company became a cohesive society. It is a study with an authenticity and immediacy rare in management studies. *1960 322 pages In Press*

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● Many of our chapters are broadening their horizons and are thinking in terms of civic responsibility and opportunity for community service. An outstanding example was the Muscular Dystrophy fund promotion through the "Shower of Stars" program sponsored by the Evening Division Chapter of the School of Commerce, New York University. In addition to the assistance given to the fund, one of the stated objectives was: "To give SAM members experience in a worthwhile civic project. This experience should serve them in good stead when they take executive positions which demand an active role in the community affairs." This outstanding service was recognized when the President of the chapter, Mrs. Patricia McSweeney, received the Certificate of Merit from the National Chairman of NFMD, Paul G. DeMuro, Mayor of Passaic, New Jersey. Our hearty congratulations for a job very well done, and we add our SAM Award of Merit.

● In addition, chapter banners and citations will be presented to Boston College, Louisiana State University, Georgia Institute of Technology, and Indiana University chapters, while the "Honorable Mention" citation will go to the University of Wisconsin--Milwaukee, and Rider College Chapters.

● Professor Richard J. Whiting, Faculty Advisor of the Los Angeles State College Chapter, made some very interesting observations in his article, *SAM Membership — A Valuable Tangible Asset,* which appeared in a recent issue of the chapter's Newsletter. "It is by your active participation that you derive benefits from SAM. The membership card and pin alone will add little. Participation in committees helps to build your understanding of the dynamics of Management. This is Management in action! It gives you a chance to work with people under conditions similar to those found in your later managerial life. It gives you a chance to make mistakes *and* learn from your mistakes. To an even greater extent participation in committees and other activities in SAM permit you to expand in your fundamental managerial skills. The key word in this whole matter is activity or participation. This depends largely on *you.* The SAM brochure, breakfast meetings, dinner-speaker meetings, Days in Management, etc., your fellow SAM members, can aid you in increasing the value of your SAM membership only if *you* are active. And, this asset is tangible. It is real. Many previous members have told me of the real nature of the value of SAM. And this value was correlated closely to the degree of activity of the members in the organization. *The value has continued after graduation."*

● The University Chapter Promotion Awards will be received by the following Senior Chapters for their achievement in advancing the art and science of management through the successful promotion and support of University Chapters: Binghamton, Washington, Boston (2 awards), Bridgeport, Chattanooga, Chicago (2 awards), Hawaii, Hudson Valley, Indianapolis, Lancaster, Los Angeles (2 awards), New York, Philadelphia, San Diego, and San Francisco. THIS WAS A GREAT YEAR!